Chemical Analysis Report

TLH-ROC-2019-09-09-01

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

Event Description: **Run 2**
Request ID: **RQ-2019-08-12-36**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 24-SEP-2019 08:39

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: Waccasassa River @ Boat Ramp **Collection Date/Time: 09/09/2019 12:05**

Field ID: G1TLHR0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2117129	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P370435	
	EPA 300.0	Bromide	0.037	I	mg Br/L	P370689	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P370694	
	SM 2540 D-97	TSS	2	I	mg/L	P370877	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P370697	
2117130	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P370516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P370420	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P370464	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P370491	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P370527	
2117131	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P370432	
2117135	EPA 200.7 Rev. 4.4	Iron	1.20E+03		ug/L	P370486	
		Manganese	39.4		ug/L	P370486	
		Zinc	5.0	U	ug/L	P370486	
	EPA 200.8 Rev. 5.4	Aluminum	77		ug/L	P370486	
		Antimony	0.050	U	ug/L	P370486	
		Arsenic	0.75		ug/L	P370486	
		Cadmium	0.020	U	ug/L	P370486	
		Chromium	0.54	I	ug/L	P370486	
		Copper	0.40	U	ug/L	P370486	
		Lead	0.20	U	ug/L	P370486	
		Nickel	0.50	U	ug/L	P370486	
		Selenium	0.20	U	ug/L	P370486	
		Silver	0.010	U	ug/L	P370486	
		Thallium	0.10	U	ug/L	P370486	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370435

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P370689

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370516

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370420

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370464

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: P370491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370432

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

Reference Method: SM 2320 B-97
Batch ID: P370694

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

Reference Method: SM 2540 D-97
Batch ID: P370877

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370697

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370527

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: P370486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Manganese	101		P	85 - 115
Zinc	99.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	105		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	105		P	85 - 115
Copper	103		P	85 - 115
Lead	104		P	85 - 115
Nickel	102		P	85 - 115
Selenium	102		P	85 - 115
Silver	106		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P370689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370420

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: P370464

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: P370491

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370432

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

Reference Method: SM 2320 B-97
Batch ID: P370694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117141	Iron	104	107	P/P	80 - 120
2117141	Manganese	100	99.9	P/P	80 - 120
2117141	Zinc	99.4	99.2	P/P	80 - 120
2117363	Iron	108		P	80 - 120
2117363	Manganese	101		P	80 - 120
2117363	Zinc	98.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117141	Aluminum	102	103	P/P	80 - 120
2117141	Antimony	100	99.9	P/P	80 - 120
2117141	Arsenic	103	103	P/P	80 - 120
2117141	Cadmium	102	101	P/P	80 - 120
2117141	Chromium	106	102	P/P	80 - 120
2117141	Copper	104	104	P/P	80 - 120
2117141	Lead	104	105	P/P	80 - 120
2117141	Nickel	102	102	P/P	80 - 120
2117141	Selenium	102	102	P/P	80 - 120
2117141	Silver	107	104	P/P	80 - 120
2117141	Thallium	100	101	P/P	80 - 120
2117363	Aluminum	102		P	80 - 120
2117363	Antimony	102		P	80 - 120
2117363	Arsenic	104		P	80 - 120
2117363	Cadmium	103		P	80 - 120
2117363	Chromium	89.9		P	80 - 120
2117363	Copper	101		P	80 - 120
2117363	Lead	107		P	80 - 120
2117363	Nickel	102		P	80 - 120
2117363	Selenium	99.9		P	80 - 120
2117363	Silver	108		P	80 - 120
2117363	Thallium	105		P	80 - 120

Reference Method: EPA 300.0
Batch ID: P370689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117129	Bromide	92.6	93.4	P/P	90 - 110
2117707	Bromide	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117138	Ammonia-N	97.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117111	NO2NO3-N	102	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116942	Total-P	99.1	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117139	O-Phosphate-P	98.0	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2117355	Fluoride	99.8	99.2	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2116909	Organic Carbon	104	106	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117231	Turbidity	0.195	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117141	Iron	2.12	Spike	P	0 - 20
2117141	Manganese	0.471	Spike	P	0 - 20
2117141	Zinc	0.219	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117141	Aluminum	0.911	Spike	P	0 - 20
2117141	Antimony	0.429	Spike	P	0 - 20
2117141	Arsenic	0.00934	Spike	P	0 - 20
2117141	Cadmium	1.12	Spike	P	0 - 20
2117141	Chromium	4.28	Spike	P	0 - 20
2117141	Copper	0.277	Spike	P	0 - 20
2117141	Lead	0.367	Spike	P	0 - 20
2117141	Nickel	0.250	Spike	P	0 - 20
2117141	Selenium	0.300	Spike	P	0 - 20
2117141	Silver	3.01	Spike	P	0 - 20
2117141	Thallium	0.793	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P370689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117129	Bromide	0.738	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117138	Ammonia-N	3.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116968	Kjeldahl Nitrogen	1.92	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117111	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116942	Total-P	4.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117139	O-Phosphate-P	0.610	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117355	Total Alkalinity	0.666	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P370697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2117355	Fluoride	0.483	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2116909	Organic Carbon	1.27	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 300.0
Run ID: A94097
Included Lab Sample IDs: 2117129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.1	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A94105
Included Lab Sample IDs: 2117131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A94106
Included Lab Sample IDs: 2117129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A94120
Included Lab Sample IDs: 2117130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A94145
Included Lab Sample IDs: 2117130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.7	90.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A94151
Included Lab Sample IDs: 2117130

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A94153
Included Lab Sample IDs: 2117130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A94158
Included Lab Sample IDs: 2117130

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A94176
Included Lab Sample IDs: 2117135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	103	P/P	90 - 110
Manganese	102	102	P/P	90 - 110
Zinc	99.6	98.3	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A94232
Included Lab Sample IDs: 2117129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A94232
Included Lab Sample IDs: 2117129

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94323
Included Lab Sample IDs: 2117135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Antimony	97.5	96.5	P/P	90 - 110
Arsenic	103	101	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Lead	104	105	P/P	90 - 110
Nickel	102	102	P/P	90 - 110
Selenium	99.4	99.3	P/P	90 - 110
Thallium	95.0	94.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94342
Included Lab Sample IDs: 2117135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	91.0	91.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94372
Included Lab Sample IDs: 2117135

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	101	101	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						0.195	
EPA 200.7 Rev. 4.4	Iron	106	104	107	108			2.12
	Manganese	101	100	99.9	101			0.471
	Zinc	99.5	99.4	99.2	98.9			0.219
EPA 200.8 Rev. 5.4	Aluminum	103	102	103	102			0.911
	Antimony	101	100	99.9	102			0.429
	Arsenic	105	103	103	104			0.0093
	Cadmium	100	102	101	103			1.12
	Chromium	105	89.9	106	102			4.28
	Copper	103	104	104	101			0.277
	Lead	104	104	105	107			0.367
	Nickel	102	102	102	102			0.250
	Selenium	102	102	102	99.9			0.300
	Silver	106	107	104	108			3.01
	Thallium	101	100	101	105			0.793
EPA 300.0	Bromide	94.8	92.6	93.4	92.5			0.738
EPA 350.1 Rev. 2.0	Ammonia-N	94.0	97.0	101				3.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101						1.92
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	100				1.49
EPA 365.1 Rev. 2.0	Total-P	97.9	99.1	104				4.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	98.0	98.6				0.610
SM 2320 B-97	Total Alkalinity	104					0.666	
SM 4500 F-C-97	Fluoride	96.9	99.8	99.2				0.483
SM 5310 B-00	Organic Carbon	107	104	106				1.27

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2117129
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2117135
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2117135
EPA 300.0 / E31780	Bromide in aqueous matrices	2117129
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2117130
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2117130
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2117130
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2117130
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2117131
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2117129
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2117129
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2117129
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2117130

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	09/09/2019			09/10/2019 16:59	Samantha Davila	2117129
EPA 200.7 Rev. 4.4	09/09/2019	09/11/2019 14:55	Elliott D. Healy	09/12/2019 15:05	Alexander Thompson	2117135
EPA 200.8 Rev. 5.4	09/09/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 00:41	Robert K Palmer	2117135
	09/09/2019	09/11/2019 14:55	Elliott D. Healy	09/18/2019 19:34	Robert K Palmer	2117135
	09/09/2019	09/11/2019 14:55	Elliott D. Healy	09/19/2019 22:23	Robert K Palmer	2117135
EPA 300.0	09/09/2019			09/13/2019 12:38	Jhamieka S. Greenwood	2117129
EPA 350.1 Rev. 2.0	09/09/2019			09/11/2019 12:55	Ping Hua	2117130
EPA 351.2 Rev. 2.0	09/09/2019	09/10/2019 13:06	Sima Feizi	09/11/2019 15:55	Julia Storbeck	2117130
EPA 353.2 Rev. 2.0	09/09/2019			09/11/2019 08:51	Beverly Y. Sanders	2117130
EPA 365.1 Rev. 2.0	09/09/2019	09/11/2019 10:25	Lipi Saha	09/12/2019 09:55	Rosalyn Ballman	2117130
EPA 365.1 Rev. 2.0 dissolved	09/09/2019			09/10/2019 16:13	Jhamieka S. Greenwood	2117131
SM 2320 B-97	09/09/2019			09/13/2019 21:07	Dale L. Simmons	2117129
SM 2540 D-97	09/09/2019			09/13/2019 15:21	Yijie Li	2117129
SM 4500 F-C-97	09/09/2019			09/13/2019 21:07	Dale L. Simmons	2117129
SM 5310 B-00	09/09/2019			09/11/2019 19:59	Madeline Funaro	2117130