Chemical Analysis Report

TLH-ROC-2019-09-12-02

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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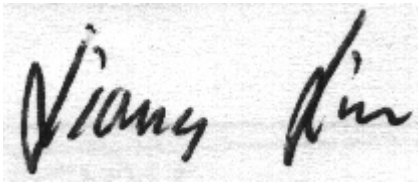
Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-OCT-2019 11:35



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 @ Otter Creek **Collection Date/Time: 09/12/2019 11:25**

Field ID: G1TLHR0101 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2118899	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P370591	
	EPA 300.0	Bromide	0.074		mg Br/L	P370690	
	SM 2320 B-97	Total Alkalinity	84		mg CaCO3/L	P371032	
	SM 2540 D-97	TSS	2	I	mg/L	P370806	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P371510	
2118900	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P370844	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P370784	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P370966	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P370789	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P370755	
2118901	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P370637	
2118905	EPA 200.7 Rev. 4.4	Iron	1.04E+03		ug/L	P370802	
		Manganese	37.5		ug/L	P370802	
		Zinc	5.0	U	ug/L	P370802	
	EPA 200.8 Rev. 5.4	Aluminum	74		ug/L	P370802	
		Antimony	0.050	U	ug/L	P370802	
		Arsenic	0.76		ug/L	P370802	
		Cadmium	0.020	U	ug/L	P370802	
		Chromium	0.78	I	ug/L	P370802	
		Copper	0.40	U	ug/L	P370802	
		Lead	0.20	U	ug/L	P370802	
		Nickel	0.50	U	ug/L	P370802	
		Selenium	0.20	U	ug/L	P370802	
		Silver	0.010	U	ug/L	P370802	
		Thallium	0.10	U	ug/L	P370802	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370591

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370802

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: P370802

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: P370690

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370784

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370966

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: P370789

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370637

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

Reference Method: SM 2320 B-97
Batch ID: P371032

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

Reference Method: SM 2540 D-97
Batch ID: P370806

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370755

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: P370802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115
Manganese	101		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370802

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.6		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	93.5		P	85 - 115
Cadmium	94.5		P	85 - 115
Chromium	92.1		P	85 - 115
Copper	99.1		P	85 - 115
Lead	99.0		P	85 - 115
Nickel	102		P	85 - 115
Selenium	93.9		P	85 - 115
Silver	101		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P370690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370966

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370789

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370637

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P371032

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

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370755

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118927	Iron	103		P	80 - 120
2118927	Manganese	98.4		P	80 - 120
2118927	Zinc	100		P	80 - 120
2119171	Iron	102	99.3	P/P	80 - 120
2119171	Manganese	99.1	95.0	P/P	80 - 120
2119171	Zinc	101	97.0	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118927	Aluminum	98.8		P	80 - 120
2118927	Antimony	100		P	80 - 120
2118927	Arsenic	94.5		P	80 - 120
2118927	Cadmium	95.0		P	80 - 120
2118927	Chromium	95.6		P	80 - 120
2118927	Copper	101		P	80 - 120
2118927	Lead	99.2		P	80 - 120
2118927	Nickel	103		P	80 - 120
2118927	Selenium	93.9		P	80 - 120
2118927	Silver	100		P	80 - 120
2118927	Thallium	103		P	80 - 120
2119171	Aluminum	97.4	98.6	P/P	80 - 120
2119171	Antimony	99.2	100	P/P	80 - 120
2119171	Arsenic	94.0	93.8	P/P	80 - 120
2119171	Cadmium	95.1	95.7	P/P	80 - 120
2119171	Chromium	94.7	95.1	P/P	80 - 120
2119171	Copper	99.9	102	P/P	80 - 120
2119171	Lead	100	100	P/P	80 - 120
2119171	Nickel	100	110	P/P	80 - 120
2119171	Selenium	94.1	93.0	P/P	80 - 120
2119171	Silver	102	101	P/P	80 - 120
2119171	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P370690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118899	Bromide	95.6	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118900	Ammonia-N	100	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118727	Kjeldahl Nitrogen	98.1	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118843	NO2NO3-N	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118900	Total-P	99.0	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370637

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119109	O-Phosphate-P	95.9	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2119000	Fluoride	98.1	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118683	Organic Carbon	103	104	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P370591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118777	Turbidity	1.68	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P370802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119171	Iron	2.86	Spike	P	0 - 20
2119171	Manganese	3.80	Spike	P	0 - 20
2119171	Zinc	3.76	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P370802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119171	Aluminum	1.18	Spike	P	0 - 20
2119171	Antimony	0.963	Spike	P	0 - 20
2119171	Arsenic	0.205	Spike	P	0 - 20
2119171	Cadmium	0.592	Spike	P	0 - 20
2119171	Chromium	0.463	Spike	P	0 - 20
2119171	Copper	2.33	Spike	P	0 - 20
2119171	Lead	0.0841	Spike	P	0 - 20
2119171	Nickel	9.58	Spike	P	0 - 20
2119171	Selenium	1.25	Spike	P	0 - 20
2119171	Silver	1.16	Spike	P	0 - 20
2119171	Thallium	0.319	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P370690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118899	Bromide	0.308	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118900	Ammonia-N	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118727	Kjeldahl Nitrogen	2.10	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118843	NO2NO3-N	0.717	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118900	Total-P	1.12	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P370637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119109	O-Phosphate-P	1.09	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P371032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119000	Total Alkalinity	0.777	Sample	P	0 - 2.8

Reference Method: SM 2540 D-97
Batch ID: P370806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118855	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P371510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2119000	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118683	Organic Carbon	0.324	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0
Run ID: A94097
Included Lab Sample IDs: 2118899

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A94168
Included Lab Sample IDs: 2118899

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A94198
Included Lab Sample IDs: 2118901

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A94255
Included Lab Sample IDs: 2118900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A94295
Included Lab Sample IDs: 2118900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A94316
Included Lab Sample IDs: 2118900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.1	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A94318
Included Lab Sample IDs: 2118900

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.6	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A94338
Included Lab Sample IDs: 2118900

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A94353
Included Lab Sample IDs: 2118899

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A94354
Included Lab Sample IDs: 2118905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	95 - 105
Manganese	103	103	P/P	95 - 105
Zinc	101	101	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94386
Included Lab Sample IDs: 2118905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	99.6	P/P	90 - 110
Arsenic	93.5	93.1	P/P	90 - 110
Cadmium	96.4	95.2	P/P	90 - 110
Selenium	96.6	95.0	P/P	90 - 110
Thallium	94.1	93.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A94568
Included Lab Sample IDs: 2118899

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A9471
Included Lab Sample IDs: 2118905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	95.4	95.9	P/P	90 - 110
Nickel	102	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A94722
Included Lab Sample IDs: 2118905

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	91.7	95.8	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Lead	98.4	99.8	P/P	90 - 110
Silver	97.9	98.5	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						1.68	
EPA 200.7 Rev. 4.4	Iron	102	103	102	99.3			2.86
	Manganese	101	98.4	99.1	95.0			3.80
	Zinc	100	100	101	97.0			3.76
EPA 200.8 Rev. 5.4	Aluminum	97.6	98.8	97.4	98.6			1.18
	Antimony	100	100	99.2	100			0.963
	Arsenic	93.5	94.5	94.0	93.8			0.205
	Cadmium	94.5	95.0	95.1	95.7			0.592
	Chromium	92.1	95.6	94.7	95.1			0.463
	Copper	99.1	101	99.9	102			2.33
	Lead	99.0	99.2	100	100			0.0841
	Nickel	102	103	100	110			9.58
	Selenium	93.9	93.9	94.1	93.0			1.25
	Silver	101	100	102	101			1.16
	Thallium	101	103	102	103			0.319
EPA 300.0	Bromide	96.8	95.6	96.0				0.308
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	100	97.9				1.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.0	98.1	102				2.10
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.2					0.717
EPA 365.1 Rev. 2.0	Total-P	97.6	99.0	97.7				1.12
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	95.9	97.6				1.09
SM 2320 B-97	Total Alkalinity	104					0.777	
SM 2540 D-97	TSS						0.0	
SM 4500 F-C-97	Fluoride	96.1	98.1	98.1				0.0
SM 5310 B-00	Organic Carbon	103	103	104				0.324

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2118899
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2118905
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2118905
EPA 300.0 / E31780	Bromide in aqueous matrices	2118899
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2118900
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2118900
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2118900
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2118900
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2118901
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2118899
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2118899
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2118899
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2118900

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	09/12/2019			09/12/2019 17:00	Samantha Davila	2118899
EPA 200.7 Rev. 4.4	09/12/2019	09/17/2019 15:15	Elliott D. Healy	09/19/2019 12:40	Betina Topolski	2118905
EPA 200.8 Rev. 5.4	09/12/2019	09/17/2019 15:15	Elliott D. Healy	09/20/2019 22:13	Justin Cutchin	2118905
	09/12/2019	09/17/2019 15:15	Elliott D. Healy	10/03/2019 20:24	Justin Cutchin	2118905
	09/12/2019	09/17/2019 15:15	Elliott D. Healy	10/04/2019 22:28	Justin Cutchin	2118905
EPA 300.0	09/12/2019			09/13/2019 21:27	Jhamieka S. Greenwood	2118899
EPA 350.1 Rev. 2.0	09/12/2019			09/17/2019 13:14	Ping Hua	2118900
EPA 351.2 Rev. 2.0	09/12/2019	09/17/2019 12:50	Sima Feizi	09/18/2019 13:45	Julia Storbeck	2118900
EPA 353.2 Rev. 2.0	09/12/2019			09/19/2019 09:48	Beverly Y. Sanders	2118900
EPA 365.1 Rev. 2.0	09/12/2019	09/17/2019 13:00	Lipi Saha	09/18/2019 10:27	Rosalyn Ballman	2118900
EPA 365.1 Rev. 2.0 dissolved	09/12/2019			09/13/2019 13:05	Jhamieka S. Greenwood	2118901
SM 2320 B-97	09/12/2019			09/18/2019 09:47	Dale L. Simmons	2118899
SM 2540 D-97	09/12/2019			09/13/2019 17:30	Blanca Fach	2118899
SM 4500 F-C-97	09/12/2019			09/25/2019 20:03	Dale L. Simmons	2118899
SM 5310 B-00	09/12/2019			09/17/2019 00:35	Madeline Funaro	2118900