Chemical Analysis Report

TLH-ROC-2017-11-15-07

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

Event Description: **kit C_pesticides**
Request ID: **RQ-2017-10-16-42**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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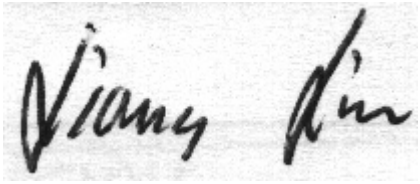
Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-DEC-2017 10:53



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: STEINHATCHEE RIVER @ 40M N OF SE YEARLING RD. **Collection Date/Time: 11/15/2017 11:00**

Field ID: G1TLHR0065-2017-09 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1946665	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P335363	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P335505	
		Sulfate	5.3		mg SO4/L	P335507	
	SM 2120 B	Color (true)	320		PCU	P335468	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P335918	
	SM 2540 C-97	TDS	202	A	mg/L	P335832	
	SM 2540 D-97	TSS	6	IA	mg/L	P335839	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P335921	
1946666	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P336279	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P335949	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P335937	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P335672	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P335967	
1946667	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P335475	
1946669	EPA 200.7 Rev. 4.4	Calcium	46.4		mg/L	P335801	
		Iron	810		ug/L	P335801	
		Magnesium	6.29		mg/L	P335801	
		Potassium	0.30	U	mg/L	P335801	
		Sodium	4.0		mg/L	P335801	
		Zinc	5.0	U	ug/L	P335801	
	EPA 200.8 Rev. 5.4	Arsenic	0.29		ug/L	P335801	
		Cadmium	0.020	U	ug/L	P335801	
		Chromium	0.46	I	ug/L	P335801	
		Copper	0.20	U	ug/L	P335801	
		Lead	0.11	I	ug/L	P335801	
		Nickel	0.24	I	ug/L	P335801	
		Silver	0.010	U	ug/L	P335801	

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: P335363

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P335801

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P335801

Component	Result	Code	Units
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: P335801

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335507

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336279

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

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

Reference Method: SM 2120 B
Batch ID: P335468

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335918

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

Reference Method: SM 2540 C-97
Batch ID: P335832

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335839

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335967

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: P335801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	100		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P335801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	107		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	104		P	85 - 115
Copper	106		P	85 - 115
Lead	107		P	85 - 115
Nickel	108		P	85 - 115
Silver	109		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335507

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336279

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P335918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P335801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947523	Calcium	104		P	80 - 120
1947523	Iron	102	105	P/P	80 - 120
1947523	Magnesium	101	104	P/P	80 - 120
1947523	Potassium	97.1	100	P/P	80 - 120
1947523	Sodium	103		P	80 - 120
1947523	Zinc	96.7	98.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P335801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947523	Arsenic	108	106	P/P	80 - 120
1947523	Cadmium	107	107	P/P	80 - 120
1947523	Chromium	104	102	P/P	80 - 120
1947523	Copper	108	101	P/P	80 - 120
1947523	Lead	107	104	P/P	80 - 120
1947523	Nickel	106	104	P/P	80 - 120
1947523	Silver	108	107	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946639	Chloride	96.4		P	90 - 110
1946672	Chloride	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335507

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946639	Sulfate	98.3		P	90 - 110
1946672	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946666	Ammonia-N	99.4	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946595	Kjeldahl Nitrogen	97.9	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1947319	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946679	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946686	O-Phosphate-P	100	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946909	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1946666	Organic Carbon	102		P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P335363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Turbidity	0.344	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P335801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947523	Calcium	0.509	Spike	P	0 - 20
1947523	Iron	2.64	Spike	P	0 - 20
1947523	Magnesium	2.63	Spike	P	0 - 20
1947523	Potassium	2.79	Spike	P	0 - 20
1947523	Sodium	1.33	Spike	P	0 - 20
1947523	Zinc	1.37	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P335801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947523	Arsenic	1.93	Spike	P	0 - 20
1947523	Cadmium	0.0642	Spike	P	0 - 20
1947523	Chromium	2.51	Spike	P	0 - 20
1947523	Copper	6.54	Spike	P	0 - 20
1947523	Lead	2.69	Spike	P	0 - 20
1947523	Nickel	1.99	Spike	P	0 - 20
1947523	Silver	0.763	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Chloride	0.589	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Sulfate	0.730	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946666	Ammonia-N	1.58	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946595	Kjeldahl Nitrogen	3.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1947319	NO2NO3-N	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946679	Total-P	0.306	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P335475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946686	O-Phosphate-P	1.63	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P335468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946639	Color (true)	0.360	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P335918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946909	Total Alkalinity	0.0586	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946665	TDS	3.47	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946909	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P335967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1946666	Organic Carbon	0.551	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 Rev. 2.1
Run ID: A80230
Included Lab Sample IDs: 1946665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.9	P/P	90 - 110
Sulfate	100	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80289
Included Lab Sample IDs: 1946665

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

Reference Method: SM 2120 B
Run ID: A80323
Included Lab Sample IDs: 1946665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	107	108	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80325
Included Lab Sample IDs: 1946667

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A80452
Included Lab Sample IDs: 1946666

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A80523
Included Lab Sample IDs: 1946669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	99.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A80523
Included Lab Sample IDs: 1946669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	90 - 110
Magnesium	101	100	P/P	90 - 110
Potassium	98.2	97.3	P/P	90 - 110
Sodium	100	98.8	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A80534
Included Lab Sample IDs: 1946665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A80534
Included Lab Sample IDs: 1946665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A80535
Included Lab Sample IDs: 1946669

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A80537
Included Lab Sample IDs: 1946666

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

Reference Method: SM 5310 B-00
Run ID: A80544
Included Lab Sample IDs: 1946666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A80570
Included Lab Sample IDs: 1946669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	106	104	P/P	90 - 110
Cadmium	104	103	P/P	90 - 110
Chromium	100	102	P/P	90 - 110
Copper	107	106	P/P	90 - 110
Lead	103	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A80570
Included Lab Sample IDs: 1946669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80599
Included Lab Sample IDs: 1946666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	95.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A80627
Included Lab Sample IDs: 1946666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	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					0.344	
EPA 200.7 Rev. 4.4	Calcium	102	104				0.509
	Iron	107	102	105			2.64
	Magnesium	110	101	104			2.63
	Potassium	102	97.1	100			2.79
	Sodium	101	103				1.33
	Zinc	100	96.7	98.4			1.37
EPA 200.8 Rev. 5.4	Arsenic	107	108	106			1.93
	Cadmium	107	107	107			0.0642
	Chromium	104	104	102			2.51
	Copper	106	108	101			6.54
	Lead	107	107	104			2.69
	Nickel	108	106	104			1.99
	Silver	109	108	107			0.763
EPA 300.0 Rev. 2.1	Chloride	96.6	96.4	94.9		0.589	
	Sulfate	97.5	98.3	96.5		0.730	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	99.4	101			1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	97.9	102			3.34
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	105			0.409
EPA 365.1 Rev. 2.0	Total-P	98.7	101	100			0.306
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	100	97.9			1.63
SM 2120 B	Color (true)					0.360	
SM 2320 B-97	Total Alkalinity	101				0.0586	
SM 2540 C-97	TDS					3.47	
SM 4500 F-C-97	Fluoride	94.3	97.4	97.4			0.0

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 5310 B-00	Organic Carbon	95.2	102			0.551

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1946665
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1946669
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1946669
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1946665
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1946665
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1946666
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1946666
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1946666
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1946666
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1946667
SM 2120 B / E31780	True Color measured at 450 nm	1946665
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1946665
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1946665
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1946665
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1946665
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1946666

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	11/15/2017			11/15/2017 16:32	DeAsia Armster	1946665
EPA 200.7 Rev. 4.4	11/15/2017	11/22/2017	Elliott D. Healy	11/27/2017	Betina Topolski	1946669
EPA 200.8 Rev. 5.4	11/15/2017	11/22/2017	Elliott D. Healy	11/28/2017	Nadine Brooks	1946669
EPA 300.0 Rev. 2.1	11/15/2017			11/16/2017	Julia Storbeck	1946665
EPA 350.1 Rev. 2.0	11/15/2017			11/30/2017	Sofia Elnemr	1946666
EPA 351.2 Rev. 2.0	11/15/2017	11/28/2017	Adrian Shelby	11/29/2017	Joseph Suarez	1946666
EPA 353.2 Rev. 2.0	11/15/2017			11/28/2017	Beverly Y. Sanders	1946666
EPA 365.1 Rev. 2.0	11/15/2017	11/21/2017	Adrian Shelby	11/21/2017	Lipi Saha	1946666
EPA 365.1 Rev. 2.0 dissolved	11/15/2017			11/16/2017 14:37	Megan Treadwell	1946667
SM 2120 B	11/15/2017			11/16/2017 16:24	Tanya Welborn	1946665
SM 2320 B-97	11/15/2017			11/27/2017	Dale L. Simmons	1946665
SM 2540 C-97	11/15/2017			11/20/2017	Yijie Li	1946665
SM 2540 D-97	11/15/2017			11/20/2017	Yijie Li	1946665
SM 4500 F-C-97	11/15/2017			11/27/2017	Dale L. Simmons	1946665
SM 5310 B-00	11/15/2017			11/27/2017	Ping Hua	1946666