Chemical Analysis Report

CEN-DIST-2017-10-17-01

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

Event Description: **Long Branch**
Request ID: **RQ-2017-07-24-29**
Customer: **CEN-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
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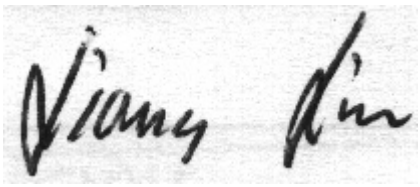
Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-NOV-2017 16:08



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, Nutrients and Pesticides.

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: Long Branch @ 0.7 miles DS of CR 13 **Collection Date/Time: 10/16/2017 11:08**

Field ID: G2CE0036 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1937239	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P333571	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P333662	
		Sulfate	31		mg SO4/L	P333664	
	SM 2120 B	Color (true)	300		PCU	P333512	
	SM 2320 B-97	Total Alkalinity	47		mg CaCO3/L	P333853	
	SM 2540 C-97	TDS	178	A	mg/L	P333870	
	SM 2540 D-97	TSS	4	IA	mg/L	P333936	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P333857	
1937240	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P333893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P333918	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P333995	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P333814	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P333990	
1937241	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P333505	
1937249	EPA 200.7 Rev. 4.4	Calcium	33.9		mg/L	P333516	
		Iron	1.01E+03		ug/L	P333516	
		Magnesium	2.57		mg/L	P333516	
		Potassium	2.1		mg/L	P333516	
		Sodium	13.8		mg/L	P333516	
		Zinc	5.0	U	ug/L	P333516	
	EPA 200.8 Rev. 5.4	Arsenic	1.13		ug/L	P333516	
		Cadmium	0.020	U	ug/L	P333516	
		Chromium	0.70	I	ug/L	P333516	
		Copper	0.56	I	ug/L	P333516	
		Lead	0.67		ug/L	P333516	
		Nickel	0.52	I	ug/L	P333516	
		Silver	0.010	U	ug/L	P333516	
1937258	EPA 8321B	Sucralose**	0.10		ug/L	P333553	

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: P333571

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P333516

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: P333516

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: P333516

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: P333662

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333664

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333918

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333995

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333814

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: P333505

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

Reference Method: EPA 8321B
Batch ID: P333553

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P333512

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333853

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

Reference Method: SM 2540 C-97
Batch ID: P333870

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333936

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333857

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P333990

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: P333516

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P333516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	108		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	99.7		P	85 - 115
Sodium	105		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P333516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	109		P	85 - 115
Chromium	102		P	85 - 115
Copper	99.4		P	85 - 115
Lead	102		P	85 - 115
Nickel	102		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333662

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333664

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333995

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333814

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P333553

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.3		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333853

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

Reference Method: SM 4500 F-C-97
Batch ID: P333857

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333990

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: P333516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937103	Calcium	110	111	P/P	80 - 120
1937103	Iron	109	110	P/P	80 - 120
1937103	Magnesium	109	111	P/P	80 - 120
1937103	Potassium	98.9	100	P/P	80 - 120
1937103	Sodium	105		P	80 - 120
1937103	Zinc	106	107	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P333516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937103	Arsenic	99.6	105	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P333516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937103	Cadmium	103	110	P/P	80 - 120
1937103	Chromium	99.7	106	P/P	80 - 120
1937103	Copper	96.2	102	P/P	80 - 120
1937103	Lead	97.2	102	P/P	80 - 120
1937103	Nickel	98.4	103	P/P	80 - 120
1937103	Silver	96.7	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937204	Chloride	105		P	90 - 110
1937205	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937204	Sulfate	103		P	90 - 110
1937205	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937209	Ammonia-N	107	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937279	Kjeldahl Nitrogen	96.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937178	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937179	Total-P	95.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937112	O-Phosphate-P	91.5	93.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P333553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937062	Sucralose	47.0	48.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P333857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938061	Fluoride	96.6	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P333990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1937083	Organic Carbon	96.1	95.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P333571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937207	Turbidity	1.56	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P333516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937103	Calcium	0.234	Spike	P	0 - 20
1937103	Iron	0.865	Spike	P	0 - 20
1937103	Magnesium	1.13	Spike	P	0 - 20
1937103	Potassium	0.733	Spike	P	0 - 20
1937103	Sodium	0.312	Spike	P	0 - 20
1937103	Zinc	1.51	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P333516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937103	Arsenic	4.65	Spike	P	0 - 20
1937103	Cadmium	6.45	Spike	P	0 - 20
1937103	Chromium	6.21	Spike	P	0 - 20
1937103	Copper	5.11	Spike	P	0 - 20
1937103	Lead	4.62	Spike	P	0 - 20
1937103	Nickel	4.52	Spike	P	0 - 20
1937103	Silver	4.78	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937204	Chloride	0.799	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937204	Sulfate	0.631	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937209	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937279	Kjeldahl Nitrogen	3.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333995

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937178	NO2NO3-N	0.460	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937179	Total-P	3.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937112	O-Phosphate-P	2.26	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P333553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937062	Sucralose	2.83	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P333512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937276	Color (true)	0.923	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938061	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937239	TDS	2.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938061	Fluoride	0.940	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1937083	Organic Carbon	0.382	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
Surrogates

Lab Sample ID: 1937258
Field Sample ID: G2CE0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	55.6	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79593
Included Lab Sample IDs: 1937239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79593
Included Lab Sample IDs: 1937239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	108	P/P	90 - 110
Sulfate	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79608
Included Lab Sample IDs: 1937241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	97.9	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A79613
Included Lab Sample IDs: 1937239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	98.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79632
Included Lab Sample IDs: 1937239

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A79650
Included Lab Sample IDs: 1937249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	106	106	P/P	90 - 110
Cadmium	108	108	P/P	90 - 110
Chromium	105	106	P/P	90 - 110
Copper	104	104	P/P	90 - 110
Lead	103	102	P/P	90 - 110
Nickel	104	104	P/P	90 - 110
Silver	101	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A79652
Included Lab Sample IDs: 1937249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	106	P/P	90 - 110
Iron	105	106	P/P	90 - 110
Magnesium	105	106	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Zinc	99.6	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A79673
Included Lab Sample IDs: 1937258

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.2	88.1	P/P	60 - 150

Reference Method: SM 2320 B-97
Run ID: A79730
Included Lab Sample IDs: 1937239

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A79730
Included Lab Sample IDs: 1937239

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79747
Included Lab Sample IDs: 1937240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79759
Included Lab Sample IDs: 1937240

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

Reference Method: SM 5310 B-00
Run ID: A79779
Included Lab Sample IDs: 1937240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79780
Included Lab Sample IDs: 1937240

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79846
Included Lab Sample IDs: 1937240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* 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					1.56	
EPA 200.7 Rev. 4.4	Calcium	107	110	111			0.234
	Iron	108	109	110			0.865
	Magnesium	109	109	111			1.13
	Potassium	99.7	98.9	100			0.733
	Sodium	105	105				0.312
	Zinc	100	106	107			1.51
EPA 200.8 Rev. 5.4	Arsenic	105	99.6	105			4.65
	Cadmium	109	103	110			6.45
	Chromium	102	99.7	106			6.21
	Copper	99.4	96.2	102			5.11
	Lead	102	97.2	102			4.62
	Nickel	102	98.4	103			4.52
	Silver	102	96.7	101			4.78
EPA 300.0 Rev. 2.1	Chloride	104	105	106		0.799	
	Sulfate	102	103	103		0.631	
EPA 350.1 Rev. 2.0	Ammonia-N	105	107	104			2.73
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	96.6	102			3.39
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101	102			0.460
EPA 365.1 Rev. 2.0	Total-P	97.6	95.1	100			3.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	91.5	93.8			2.26
EPA 8321B	Sucralose	92.3	47.0	48.8			2.83
SM 2120 B	Color (true)					0.923	
SM 2320 B-97	Total Alkalinity	101				0.354	
SM 2540 C-97	TDS					2.80	
SM 4500 F-C-97	Fluoride	95.9	96.6	97.8			0.940
SM 5310 B-00	Organic Carbon	95.2	96.1	95.4			0.382

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1937239
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1937249
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1937249
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1937239
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1937239
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1937240
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1937240
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1937240

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1937240
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1937241
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1937258
SM 2120 B / E31780	True Color measured at 450 nm	1937239
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1937239
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1937239
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1937239
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1937239
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1937240

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	10/17/2017			10/17/2017 15:46	DeAsia Armster	1937239
EPA 200.7 Rev. 4.4	10/17/2017	10/17/2017	Elliott D. Healy	10/18/2017	Betina Topolski	1937249
EPA 200.8 Rev. 5.4	10/17/2017	10/17/2017	Elliott D. Healy	10/18/2017	Nadine Brooks	1937249
EPA 300.0 Rev. 2.1	10/17/2017			10/18/2017	Julia Storbeck	1937239
EPA 350.1 Rev. 2.0	10/17/2017			10/23/2017	Sofia Elnemr	1937240
EPA 351.2 Rev. 2.0	10/17/2017	10/24/2017	Adrian Shelby	10/26/2017	Tanya Welborn	1937240
EPA 353.2 Rev. 2.0	10/17/2017			10/24/2017	Beverly Y. Sanders	1937240
EPA 365.1 Rev. 2.0	10/17/2017	10/23/2017	Sima Feizi	10/24/2017	Lipi Saha	1937240
EPA 365.1 Rev. 2.0 dissolved	10/17/2017			10/17/2017 14:32	Megan Treadwell	1937241
EPA 8321B	10/17/2017	10/18/2017	Juyoung Kim	10/19/2017	Juyoung Kim	1937258
SM 2120 B	10/17/2017			10/17/2017 15:16	Tanya Welborn	1937239
SM 2320 B-97	10/17/2017			10/21/2017	Dale L. Simmons	1937239
SM 2540 C-97	10/17/2017			10/18/2017	Yijie Li	1937239
SM 2540 D-97	10/17/2017			10/18/2017	Yijie Li	1937239
SM 4500 F-C-97	10/17/2017			10/21/2017	Dale L. Simmons	1937239
SM 5310 B-00	10/17/2017			10/23/2017	Ping Hua	1937240