

Chemical Analysis Report

SO-DIST-2018-02-15-05

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

Event Description: **CALOOSA LT 3240BC**
Request ID: **RQ-2018-02-12-21**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: John Barrington

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

Certified by: Liang Lin, Environmental Administrator

Date Certified: 18-APR-2018 16:24

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: CALOOSA RVR @ UPSTREAM OF US 41
MARKER # 38**

Collection Date/Time: 02/14/2018 11:03

Field ID: SD021418-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968027	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P340427	
1968035	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P340259	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340500	
1968043	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P340066	
1968051	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P340282	
		Zinc	15	U	ug/L	P340282	
	EPA 200.8 Rev. 5.4	Arsenic	1.70		ug/L	P340282	
		Cadmium	0.060	U	ug/L	P340282	
		Chromium	1.2	U	ug/L	P340282	
		Copper	1.5	I	ug/L	P340282	
		Lead	0.15	U	ug/L	P340282	
		Nickel	0.80	I	ug/L	P340282	
		Silver	0.030	U	ug/L	P340282	

Sample Location: CALOOSA RVR @ MARKER # 28

Collection Date/Time: 02/14/2018 11:16

Field ID: SD021418-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968028	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340427	
1968036	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P340259	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340500	
1968044	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P340066	
1968052	EPA 200.7 Rev. 4.4	Iron	150		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.55		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.40	U	ug/L	P340242	
		Copper	1.26		ug/L	P340242	
		Lead	0.15	U	ug/L	P340242	
		Nickel	0.47	I	ug/L	P340242	
		Silver	0.010	U	ug/L	P340242	

Sample Location: CALOOSA RVR @ MARKER # 22

Collection Date/Time: 02/14/2018 11:32

Field ID: SD021418-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968029	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340427	
1968037	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340500	

Field ID: SD021418-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968045	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P340067	
1968053	EPA 200.7 Rev. 4.4	Iron	190		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.56		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.40	U	ug/L	P340242	
		Copper	1.27		ug/L	P340242	
		Lead	0.11	I	ug/L	P340242	
		Nickel	0.52	I	ug/L	P340242	
		Silver	0.010	U	ug/L	P340242	

Sample Location: CALOOSA RVR @ OLD SWING BRIDGE

Collection Date/Time: 02/14/2018 11:45

Field ID: SD021418-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968030	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P340500	
1968038	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340500	
1968046	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P340067	
1968054	EPA 200.7 Rev. 4.4	Iron	200		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.57		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.40	U	ug/L	P340242	
		Copper	1.29		ug/L	P340242	
		Lead	0.11	I	ug/L	P340242	
		Nickel	0.54	I	ug/L	P340242	
		Silver	0.010	U	ug/L	P340242	

Sample Location: CALOOSA RVR @ MID CHANNEL-ORANGE RIVER MOUTH

Collection Date/Time: 02/14/2018 12:05

Field ID: SD021418-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968031	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340500	
1968039	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92	J	mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340500	
1968047	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P340067	
1968055	EPA 200.7 Rev. 4.4	Iron	240		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.59		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.43	I	ug/L	P340242	

Field ID: SD021418-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968055	EPA 200.8 Rev. 5.4	Copper	1.29		ug/L	P340242	
		Lead	0.14	I	ug/L	P340242	
		Nickel	0.58	I	ug/L	P340242	
		Silver	0.010	U	ug/L	P340242	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: CALOOSA RVR @ UPSTREAM OF FPL POWER PLANT **Collection Date/Time: 02/14/2018 12:20**

Field ID: SD021418-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968032	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340773	
1968040	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340773	
1968048	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P340067	
1968056	EPA 200.7 Rev. 4.4	Iron	200		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.54		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.75	I	ug/L	P340242	
		Copper	1.26		ug/L	P340242	
		Lead	0.11	I	ug/L	P340242	
		Nickel	0.71	I	ug/L	P340242	
		Silver	0.010	U	ug/L	P340242	

Sample Location: CALOOSA RVR @ MID CHANNEL OFF OXBOW ON SOUTH BANK **Collection Date/Time: 02/14/2018 12:30**

Field ID: SD021418-11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968033	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P340773	
1968041	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P340437	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340773	
1968049	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.071		mg P/L	P340067	
1968057	EPA 200.7 Rev. 4.4	Iron	230		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.66		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.40	U	ug/L	P342056	
		Copper	1.32		ug/L	P340242	
		Lead	0.12	I	ug/L	P340242	
		Nickel	0.49	I	ug/L	P342056	
		Silver	0.010	U	ug/L	P340242	

Sample Location: CALOOSA RVR @ MID CHANNEL OFF POINT ON SOUTH BANK **Collection Date/Time: 02/14/2018 12:40**

Field ID: SD021418-12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968034	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P340500	
1968042	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P340263	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P430438	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340500	
1968050	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.076		mg P/L	P340067	
1968058	EPA 200.7 Rev. 4.4	Iron	540		ug/L	P340242	
		Zinc	5.0	U	ug/L	P340242	
	EPA 200.8 Rev. 5.4	Arsenic	1.61		ug/L	P340242	
		Cadmium	0.020	U	ug/L	P340242	
		Chromium	0.44	I	ug/L	P341619	
		Copper	1.22		ug/L	P342557	
		Lead	0.18	I	ug/L	P340242	
		Nickel	0.49	I	ug/L	P341619	
		Silver	0.010	U	ug/L	P340242	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340242

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340282

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340242

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 200.8 Rev. 5.4
Batch ID: P340282

Component	Result	Code	Units
Arsenic	0.050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340282

Component	Result	Code	Units
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 200.8 Rev. 5.4
Batch ID: P341619

Component	Result	Code	Units
Chromium	0.40	U	ug/L
Nickel	0.20	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342056

Component	Result	Code	Units
Chromium	0.40	U	ug/L
Nickel	0.20	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342557

Component	Result	Code	Units
Copper	0.20	U	ug/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340259

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340437

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

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 dissolved
Batch ID: P340066

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

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

Reference Method: SM 5310 B-00
Batch ID: P340500

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

Reference Method: SM 5310 B-00
Batch ID: P340773

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340427

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340500

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340773

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: P340242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	111		P	85 - 115
Zinc	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Zinc	98.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.2		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	99.1		P	85 - 115
Copper	101		P	85 - 115
Lead	102		P	85 - 115
Nickel	99.8		P	85 - 115
Silver	91.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	109		P	85 - 115
Copper	104		P	85 - 115
Lead	105		P	85 - 115
Nickel	103		P	85 - 115
Silver	99.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	98.8		P	85 - 115
Nickel	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	104		P	85 - 115
Nickel	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	97.3		P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.7		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340437

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340066

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

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

Reference Method: SM 5310 B-00
Batch ID: P340500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P340773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340500

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967770	Iron	109		P	80 - 120
1967770	Zinc	102		P	80 - 120
1967980	Iron	111	113	P/P	80 - 120
1967980	Zinc	96.9	99.5	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966626	Iron	104	101	P/P	80 - 120
1966626	Zinc	93.6	94.1	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967770	Arsenic	99.2		P	80 - 120
1967770	Cadmium	105		P	80 - 120
1967770	Chromium	103		P	80 - 120
1967770	Copper	101		P	80 - 120
1967770	Lead	104		P	80 - 120
1967770	Nickel	99.3		P	80 - 120
1967770	Silver	92.8		P	80 - 120
1967980	Arsenic	103	104	P/P	80 - 120
1967980	Cadmium	105	107	P/P	80 - 120
1967980	Chromium	103	105	P/P	80 - 120
1967980	Copper	98.4	99.6	P/P	80 - 120
1967980	Lead	106	107	P/P	80 - 120
1967980	Nickel	98.3	99.0	P/P	80 - 120
1967980	Silver	94.2	95.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966626	Arsenic	113	112	P/P	70 - 130
1966626	Cadmium	101	102	P/P	70 - 130
1966626	Chromium	109	105	P/P	70 - 130
1966626	Copper	100	99.8	P/P	70 - 130
1966626	Lead	110	110	P/P	70 - 130
1966626	Nickel	100	100	P/P	70 - 130
1966626	Silver	95.1	94.9	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970527	Chromium	99.9	98.5	P/P	80 - 120
1970527	Nickel	98.7	97.1	P/P	80 - 120
1970913	Chromium	98.5		P	80 - 120
1970913	Nickel	99.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980989	Chromium	104		P	80 - 120
1980989	Nickel	102		P	80 - 120
1981281	Chromium	103	102	P/P	80 - 120
1981281	Nickel	99.6	99.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979326	Copper	93.4		P	80 - 120
1979402	Copper	95.4	93.6	P/P	80 - 120

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967990	Kjeldahl Nitrogen	96.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968039	Kjeldahl Nitrogen	114	108	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967991	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968042	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967798	O-Phosphate-P	97.9	98.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968045	O-Phosphate-P	98.5	98.2	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P340500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968030	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P340773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970245	Organic Carbon	95.1	95.5	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967650	Organic Carbon	95.3	96.1	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968030	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970245	Organic Carbon	95.1	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967980	Iron	1.45	Spike	P	0 - 20
1967980	Zinc	2.19	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P340282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966626	Iron	2.40	Spike	P	0 - 20
1966626	Zinc	0.543	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967980	Arsenic	0.963	Spike	P	0 - 20
1967980	Cadmium	1.31	Spike	P	0 - 20
1967980	Chromium	1.43	Spike	P	0 - 20
1967980	Copper	1.22	Spike	P	0 - 20
1967980	Lead	0.278	Spike	P	0 - 20
1967980	Nickel	0.652	Spike	P	0 - 20
1967980	Silver	1.26	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P340282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966626	Arsenic	0.364	Spike	P	0 - 20
1966626	Cadmium	1.06	Spike	P	0 - 20
1966626	Chromium	2.91	Spike	P	0 - 20
1966626	Copper	0.317	Spike	P	0 - 20
1966626	Lead	0.476	Spike	P	0 - 20
1966626	Nickel	0.0404	Spike	P	0 - 20
1966626	Silver	0.214	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970527	Chromium	1.42	Spike	P	0 - 20
1970527	Nickel	1.64	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981281	Chromium	0.207	Spike	P	0 - 20
1981281	Nickel	0.0320	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P342557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979402	Copper	1.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967990	Kjeldahl Nitrogen	1.37	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968039	Kjeldahl Nitrogen	4.03	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967991	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968042	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967798	O-Phosphate-P	0.180	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968045	O-Phosphate-P	0.211	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P340500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968030	Organic Carbon	0.236	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P340773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970245	Organic Carbon	0.276	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967650	Organic Carbon	0.773	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968030	Organic Carbon	0.236	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P340773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970245	Organic Carbon	0.276	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 365.1 Rev. 2.0 dissolved
Run ID: A82105
Included Lab Sample IDs: 1968043, 1968044, 1968045, 1968046, 1968047, 1968048, 1968049, 1968050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A82218
Included Lab Sample IDs: 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	100	P/P	90 - 110
Cadmium	99.5	98.3	P/P	90 - 110
Chromium	98.3	92.6	P/P	90 - 110
Copper	99.6	99.7	P/P	90 - 110
Lead	100	97.4	P/P	90 - 110
Nickel	98.8	100	P/P	90 - 110
Silver	97.2	97.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A82219
Included Lab Sample IDs: 1968051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.5	99.5	P/P	90 - 110
Zinc	99.6	97.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A82221
Included Lab Sample IDs: 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82221

Included Lab Sample IDs: 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82224

Included Lab Sample IDs: 1968035, 1968036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	109	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A82231

Included Lab Sample IDs: 1968027, 1968028, 1968029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82232

Included Lab Sample IDs: 1968035, 1968036, 1968037, 1968038, 1968039, 1968040, 1968041, 1968042

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82237

Included Lab Sample IDs: 1968037, 1968038, 1968039, 1968040, 1968041, 1968042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	107	P/P	90 - 110
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82238

Included Lab Sample IDs: 1968051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	101	P/P	90 - 110
Cadmium	98.3	97.4	P/P	90 - 110
Copper	102	102	P/P	90 - 110
Lead	99.6	99.7	P/P	90 - 110
Nickel	102	102	P/P	90 - 110
Silver	96.8	96.7	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82243

Included Lab Sample IDs: 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82257

Included Lab Sample IDs: 1968035, 1968036, 1968037, 1968038, 1968039, 1968042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	99.8	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A82257

Included Lab Sample IDs: 1968030, 1968031, 1968034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	99.8	P/P	90 - 110
Organic Carbon	100	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82263

Included Lab Sample IDs: 1968051, 1968052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	103	103	P/P	90 - 110
Lead	105	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82352

Included Lab Sample IDs: 1968040, 1968041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.4	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A82352

Included Lab Sample IDs: 1968032, 1968033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82829

Included Lab Sample IDs: 1968058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	93.7	93.2	P/P	90 - 110
Nickel	98.3	97.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83040

Included Lab Sample IDs: 1968058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	91.8	93.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83172

Included Lab Sample IDs: 1968057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.1	99.2	P/P	90 - 110
Nickel	99.5	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	LCS	Precision SMP	MS
EPA 200.7 Rev. 4.4	Iron	111	109	111		1.45
	Iron	107	104	101		2.40
	Zinc	100	102	96.9		2.19
	Zinc	98.1	93.6	94.1		0.543
EPA 200.8 Rev. 5.4	Arsenic	99.2	99.2	103	104	0.963
	Arsenic	103	113	112		0.364
	Cadmium	104	105	105	107	1.31
	Cadmium	102	101	102		1.06
	Chromium	99.1	103	103	105	1.43
	Chromium	109	109	105		2.91
	Chromium	98.8	99.9	98.5	98.5	1.42
	Chromium	104	104	103	102	0.207
	Copper	101	101	98.4	99.6	1.22
	Copper	104	100	99.8		0.317
	Copper	97.3	95.4	93.6	93.4	1.86
	Lead	102	104	106	107	0.278
	Lead	105	110	110		0.476
	Nickel	99.8	99.3	98.3	99.0	0.652
	Nickel	103	100	100		0.0404
	Nickel	101	98.7	97.1	99.1	1.64
	Nickel	101	102	99.6	99.6	0.0320
	Silver	91.7	92.8	94.2	95.4	1.26
	Silver	99.2	95.1	94.9		0.214
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.7	96.8	98.5		1.37
	Kjeldahl Nitrogen	104	114	108		4.03
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	104		0.454
	NO2NO3-N	104	101			0.0
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	97.9	98.1		0.180
	O-Phosphate-P	102	98.5	98.2		0.211
SM 5310 B-00	Organic Carbon	99.3	102	102		0.236
	Organic Carbon	96.7	95.1	95.5		0.276
SM 5310 B-00 dissolved	Organic Carbon	95.6	95.3	96.1		0.773
	Organic Carbon	99.3	102	102		0.236
	Organic Carbon	96.7	95.1	95.5		0.276

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1968051, 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1968051, 1968052, 1968053, 1968054, 1968055, 1968056, 1968057, 1968058
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1968035, 1968036, 1968037, 1968038, 1968039, 1968040, 1968041, 1968042
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1968035, 1968036, 1968037, 1968038, 1968039, 1968040, 1968041, 1968042
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1968043, 1968044, 1968045, 1968046, 1968047, 1968048, 1968049, 1968050
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1968035, 1968036, 1968037, 1968038, 1968039, 1968040, 1968041, 1968042
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1968027, 1968028, 1968029, 1968030, 1968031, 1968032, 1968033, 1968034

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:04	Martin Acosta	1968052
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:19	Martin Acosta	1968053
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:34	Martin Acosta	1968054
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 20:15	Martin Acosta	1968055
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 20:30	Martin Acosta	1968056
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 20:45	Martin Acosta	1968057
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 21:00	Martin Acosta	1968058
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 17:27	Betina Topolski	1968052
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 17:37	Betina Topolski	1968053
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 17:47	Betina Topolski	1968054
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 17:58	Betina Topolski	1968055
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 18:08	Betina Topolski	1968056
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 18:18	Betina Topolski	1968057
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/22/2018 18:28	Betina Topolski	1968058
	02/15/2018	02/20/2018 16:20	Elliott D. Healy	02/21/2018 17:04	Betina Topolski	1968051
EPA 200.8 Rev. 5.4	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 18:27	Nadine Brooks	1968052
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 18:37	Nadine Brooks	1968053
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 18:46	Nadine Brooks	1968054
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 18:56	Nadine Brooks	1968055
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:05	Nadine Brooks	1968056
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:15	Nadine Brooks	1968057
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/21/2018 19:24	Nadine Brooks	1968058
	02/15/2018	02/19/2018 17:15	Elliott D. Healy	02/23/2018 13:35	Nadine Brooks	1968052
	02/15/2018	02/20/2018 16:20	Elliott D. Healy	02/23/2018 00:04	Nadine Brooks	1968051
	02/15/2018	02/20/2018 16:20	Elliott D. Healy	02/23/2018 16:54	Nadine Brooks	1968051
	02/15/2018	03/15/2018 13:50	Elliott D. Healy	03/23/2018 14:29	Robert K Palmer	1968058
	02/15/2018	04/02/2018 13:15	Elliott D. Healy	04/04/2018 23:50	Nadine Brooks	1968058
	02/15/2018	04/09/2018 18:15	Elliott D. Healy	04/12/2018 03:40	Nadine Brooks	1968057
EPA 351.2 Rev. 2.0	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 09:53	Joseph Suarez	1968035
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 09:54	Joseph Suarez	1968036
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:09	Joseph Suarez	1968037
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:11	Joseph Suarez	1968038
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:13	Joseph Suarez	1968039
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:17	Joseph Suarez	1968040
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:22	Joseph Suarez	1968041
	02/15/2018	02/20/2018 15:30	Adrian Shelby	02/22/2018 15:23	Joseph Suarez	1968042
EPA 353.2 Rev. 2.0	02/15/2018			02/22/2018 11:40	Beverly Y. Sanders	1968035
	02/15/2018			02/22/2018 11:41	Beverly Y. Sanders	1968036
	02/15/2018			02/22/2018 11:43	Beverly Y. Sanders	1968037
	02/15/2018			02/22/2018 11:44	Beverly Y. Sanders	1968038

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	02/15/2018			02/22/2018 11:45	Beverly Y. Sanders	1968039
	02/15/2018			02/22/2018 11:46	Beverly Y. Sanders	1968040
	02/15/2018			02/22/2018 11:48	Beverly Y. Sanders	1968041
	02/15/2018			02/22/2018 11:55	Beverly Y. Sanders	1968042
EPA 365.1 Rev. 2.0 dissolved	02/15/2018			02/15/2018 16:00	Megan Treadwell	1968045
	02/15/2018			02/15/2018 16:24	Megan Treadwell	1968043
	02/15/2018			02/15/2018 16:25	Megan Treadwell	1968044
	02/15/2018			02/15/2018 16:26	Megan Treadwell	1968046
	02/15/2018			02/15/2018 16:27	Megan Treadwell	1968047, 1968048
	02/15/2018			02/15/2018 16:33	Megan Treadwell	1968049, 1968050
SM 5310 B-00	02/15/2018			02/22/2018 20:40	Megan Treadwell	1968035
	02/15/2018			02/22/2018 20:54	Megan Treadwell	1968036
	02/15/2018			02/22/2018 21:08	Megan Treadwell	1968037
	02/15/2018			02/22/2018 21:20	Megan Treadwell	1968038
	02/15/2018			02/22/2018 21:33	Megan Treadwell	1968039
	02/15/2018			02/22/2018 22:15	Megan Treadwell	1968042
	02/15/2018			02/28/2018 22:44	Megan Treadwell	1968040
	02/15/2018			02/28/2018 22:57	Megan Treadwell	1968041
SM 5310 B-00 dissolved	02/15/2018			02/22/2018 04:28	Megan Treadwell	1968027
	02/15/2018			02/22/2018 04:43	Megan Treadwell	1968028
	02/15/2018			02/22/2018 04:57	Megan Treadwell	1968029
	02/15/2018			02/22/2018 18:15	Megan Treadwell	1968030
	02/15/2018			02/22/2018 19:08	Megan Treadwell	1968031
	02/15/2018			02/22/2018 20:27	Megan Treadwell	1968034
	02/15/2018			02/28/2018 22:17	Megan Treadwell	1968032
	02/15/2018			02/28/2018 22:31	Megan Treadwell	1968033