

Chemical Analysis Report

SO-DIST-2018-03-15-02

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

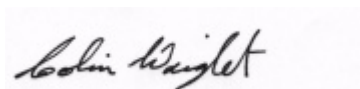
Event Description: **CALOOSA LT 3240BC**
Request ID: **RQ-2018-03-12-09**
Customer: **SO-DIST**
Project ID: **BMAP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 23-APR-2018 14:21

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular 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: US 41, Marker # 38

Collection Date/Time: 03/14/2018 12:52

Field ID: G3SD0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975065	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P342186	
1975073	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P342186	
1975081	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P341650	
1975092	EPA 200.7 Rev. 4.4	Iron	110	I	ug/L	P341870	
		Zinc	15	U	ug/L	P341870	
	EPA 200.8 Rev. 5.4	Arsenic	1.75		ug/L	P341870	
		Cadmium	0.060	U	ug/L	P341870	
		Chromium	1.2	U	ug/L	PP34187	
		Copper	1.4	I	ug/L	P341870	
		Lead	0.15	U	ug/L	P341870	
		Nickel	0.60	U	ug/L	P341870	
		Silver	0.030	U	ug/L	P341870	

Sample Location: Marker # 28

Collection Date/Time: 03/14/2018 13:10

Field ID: G3SD0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975066	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P342186	
1975074	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P342186	
1975082	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P341650	
1975093	EPA 200.7 Rev. 4.4	Iron	150	I	ug/L	P341870	
		Zinc	15	U	ug/L	P341870	
	EPA 200.8 Rev. 5.4	Arsenic	1.90		ug/L	P341870	
		Cadmium	0.060	U	ug/L	P341870	
		Chromium	1.2	U	ug/L	PP34187	
		Copper	1.4	I	ug/L	P341870	
		Lead	0.15	U	ug/L	P341870	
		Nickel	0.60	U	ug/L	P341870	
		Silver	0.030	U	ug/L	P341870	

Sample Location: Marker # 22

Collection Date/Time: 03/14/2018 13:30

Field ID: G3SD0114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975067	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975075	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P342186	
1975083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P341650	

Field ID: G3SD0114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975094	EPA 200.7 Rev. 4.4	Iron	200		ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.60		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.47	I	ug/L	P341768	
		Copper	1.39		ug/L	P341768	
		Lead	0.13	I	ug/L	P343020	
		Nickel	0.45	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: Old Swing Bridge

Collection Date/Time: 03/14/2018 13:50

Field ID: G3SD0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975068	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975076	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P342186	
1975084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P341650	
1975095	EPA 200.7 Rev. 4.4	Iron	210		ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.63		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.43	I	ug/L	P341768	
		Copper	1.32		ug/L	P341768	
		Lead	0.12	I	ug/L	P343020	
		Nickel	0.47	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: MidChannel@OrangeRiver

Collection Date/Time: 03/14/2018 14:10

Field ID: G3SD0116

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975069	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975077	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342437	
1975085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P341651	
1975096	EPA 200.7 Rev. 4.4	Iron	190		ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.63		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.40	U	ug/L	P341768	
		Copper	1.31		ug/L	P341768	
		Lead	0.12	I	ug/L	P343020	

Field ID: G3SD0116

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975096	EPA 200.8 Rev. 5.4	Nickel	0.54	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: Upstream of Power Plant

Collection Date/Time: 03/14/2018 14:30

Field ID: G3SD0117

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975070	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975078	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342437	
1975086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P341651	
1975097	EPA 200.7 Rev. 4.4	Iron	120	I	ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.61		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.40	U	ug/L	P341768	
		Copper	1.25		ug/L	P341768	
		Lead	0.081	I	ug/L	P343020	
		Nickel	0.41	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: Mid Channel off Oxbow

Collection Date/Time: 03/14/2018 14:45

Field ID: G3SD0118

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975071	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975079	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P341821	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P341700	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342437	
1975087	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.071		mg P/L	P341651	
1975098	EPA 200.7 Rev. 4.4	Iron	140		ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.55		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.40	U	ug/L	P341768	
		Copper	1.20		ug/L	P341768	
		Lead	0.11	I	ug/L	P343020	
		Nickel	0.41	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: Mid channel off point

Collection Date/Time: 03/14/2018 15:00

Field ID: G3SD0119

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G3SD0119

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975072	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P342186	
1975080	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P341879	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P341701	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P342437	
1975088	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.076		mg P/L	P341651	
1975099	EPA 200.7 Rev. 4.4	Iron	220		ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	1.56		ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.40	U	ug/L	P341768	
		Copper	1.25		ug/L	P341768	
		Lead	0.13	I	ug/L	P343020	
		Nickel	0.43	I	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Sample Location: Field Blank

Collection Date/Time: 03/14/2018 15:07

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1975089	SM 5310 B-00 dissolved	Organic Carbon	0.50	U	mg C/L	P342437	
1975090	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P341813	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341735	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P342437	
1975091	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341649	
1975100	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P341768	
		Zinc	5.0	U	ug/L	P341768	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P341768	
		Cadmium	0.020	U	ug/L	P341768	
		Chromium	0.40	U	ug/L	P341768	
		Copper	0.20	U	ug/L	P341768	
		Lead	0.050	U	ug/L	P341768	
		Nickel	0.20	U	ug/L	P341768	
		Silver	0.010	U	ug/L	P341768	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341768

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341870

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: P341768

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	0.11	I	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341870

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	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: P343020

Component	Result	Code	Units
Lead	0.050	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: PP341870

Component	Result	Code	Units
Chromium	0.40	U	ug/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341813

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341821

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341879

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341700

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341701

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341735

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341649

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341650

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341651

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

Reference Method: SM 5310 B-00
Batch ID: P342186

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

Reference Method: SM 5310 B-00
Batch ID: P342437

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342186

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342437

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: P341768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115
Zinc	96.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	106		P	85 - 115
Chromium	103		P	85 - 115
Copper	101		P	85 - 115
Lead	104		P	85 - 115
Nickel	99.9		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	105		P	85 - 115
Copper	102		P	85 - 115
Lead	102		P	85 - 115
Nickel	101		P	85 - 115
Silver	98.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: PP341870

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	102		P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341813

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341821

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341879

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341700

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341701

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341735

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341649

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341650

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341651

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

Reference Method: SM 5310 B-00
Batch ID: P342186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P342437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975197	Iron	104		P	80 - 120
1975197	Zinc	95.4		P	80 - 120
1975321	Iron	103	102	P/P	80 - 120
1975321	Zinc	97.0	97.0	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975360	Iron	98.3	99.7	P/P	80 - 120
1975360	Zinc	95.2	93.8	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975197	Arsenic	101		P	80 - 120
1975197	Cadmium	106		P	80 - 120
1975197	Chromium	99.5		P	80 - 120
1975197	Copper	96.1		P	80 - 120
1975197	Lead	104		P	80 - 120
1975197	Nickel	92.7		P	80 - 120
1975197	Silver	99.0		P	80 - 120
1975321	Arsenic	102	103	P/P	80 - 120
1975321	Cadmium	106	106	P/P	80 - 120
1975321	Chromium	102	102	P/P	80 - 120
1975321	Copper	100	101	P/P	80 - 120
1975321	Lead	104	105	P/P	80 - 120
1975321	Nickel	98.5	98.6	P/P	80 - 120
1975321	Silver	105	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975360	Arsenic	109	110	P/P	70 - 130
1975360	Cadmium	97.4	101	P/P	70 - 130
1975360	Copper	99.5	99.8	P/P	70 - 130
1975360	Lead	106	108	P/P	70 - 130
1975360	Nickel	98.7	102	P/P	70 - 130
1975360	Silver	92.3	92.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975197	Lead	103		P	80 - 120
1977231	Lead	104	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: PP341870

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975360	Chromium	89.8	89.4	P/P	70 - 130

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975126	Kjeldahl Nitrogen	108	111	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975033	Kjeldahl Nitrogen	103	96.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975138	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975031	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975080	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974966	NO2NO3-N	94.9	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975228	O-Phosphate-P	97.5	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1974951	O-Phosphate-P	98.4	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975144	O-Phosphate-P	97.3	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P342186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975005	Organic Carbon	91.9	92.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P342437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975077	Organic Carbon	95.6	98.8	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975005	Organic Carbon	91.9	92.3	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1975077	Organic Carbon	95.6	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975321	Iron	0.920	Spike	P	0 - 20
1975321	Zinc	0.0976	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975360	Iron	1.38	Spike	P	0 - 20
1975360	Zinc	1.53	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975321	Arsenic	0.437	Spike	P	0 - 20
1975321	Cadmium	0.245	Spike	P	0 - 20
1975321	Chromium	0.320	Spike	P	0 - 20
1975321	Copper	0.600	Spike	P	0 - 20
1975321	Lead	0.558	Spike	P	0 - 20
1975321	Nickel	0.105	Spike	P	0 - 20
1975321	Silver	2.59	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975360	Arsenic	0.510	Spike	P	0 - 20
1975360	Cadmium	3.38	Spike	P	0 - 20
1975360	Copper	0.340	Spike	P	0 - 20
1975360	Lead	1.98	Spike	P	0 - 20
1975360	Nickel	3.14	Spike	P	0 - 20
1975360	Silver	0.655	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977231	Lead	1.07	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: PP341870

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975360	Chromium	0.454	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975126	Kjeldahl Nitrogen	1.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975033	Kjeldahl Nitrogen	5.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975138	Kjeldahl Nitrogen	0.809	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975031	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975080	NO2NO3-N	0.925	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974966	NO2NO3-N	1.03	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975228	O-Phosphate-P	0.538	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1974951	O-Phosphate-P	0.621	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975144	O-Phosphate-P	0.778	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P342186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975005	Organic Carbon	0.211	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P342437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975077	Organic Carbon	1.75	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975005	Organic Carbon	0.211	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P342437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1975077	Organic Carbon	1.75	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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82644

Included Lab Sample IDs: 1975081, 1975082, 1975083, 1975084, 1975085, 1975086, 1975087, 1975088, 1975091

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82663

Included Lab Sample IDs: 1975073, 1975074, 1975075, 1975076, 1975077, 1975078, 1975079, 1975080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82687

Included Lab Sample IDs: 1975090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82745

Included Lab Sample IDs: 1975094, 1975095, 1975096, 1975097, 1975098, 1975099, 1975100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	102	P/P	95 - 105
Iron	102	102	P/P	90 - 110
Zinc	101	100	P/P	90 - 110
Zinc	102	101	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A82770

Included Lab Sample IDs: 1975092, 1975093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.1	97.2	P/P	90 - 110
Zinc	100	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82776

Included Lab Sample IDs: 1975073, 1975074, 1975075, 1975076, 1975077, 1975078, 1975079, 1975090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	98.7	P/P	90 - 110
Kjeldahl Nitrogen	98.7	102	P/P	90 - 110
Kjeldahl Nitrogen	99.3	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82796

Included Lab Sample IDs: 1975080

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82796

Included Lab Sample IDs: 1975080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82844

Included Lab Sample IDs: 1975073, 1975074, 1975075, 1975076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	96.4	P/P	90 - 110
Organic Carbon	98.2	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A82844

Included Lab Sample IDs: 1975065, 1975066, 1975067, 1975068, 1975069, 1975070, 1975071, 1975072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.2	P/P	90 - 110
Organic Carbon	98.2	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82941

Included Lab Sample IDs: 1975077, 1975078, 1975079, 1975080, 1975090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.4	P/P	90 - 110
Organic Carbon	98.2	97.6	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A82941

Included Lab Sample IDs: 1975089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82987

Included Lab Sample IDs: 1975094, 1975095, 1975096, 1975097, 1975098, 1975099, 1975100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	99.3	P/P	90 - 110
Arsenic	99.3	102	P/P	90 - 110
Cadmium	101	99.8	P/P	90 - 110
Cadmium	99.8	101	P/P	90 - 110
Chromium	96.0	95.6	P/P	90 - 110
Chromium	97.8	96.0	P/P	90 - 110
Copper	97.6	97.8	P/P	90 - 110
Copper	99.9	97.6	P/P	90 - 110
Lead	100	100	P/P	90 - 110
Nickel	95.9	95.8	P/P	90 - 110
Nickel	98.4	95.9	P/P	90 - 110
Silver	102	102	P/P	90 - 110
Silver	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A83015
 Included Lab Sample IDs: 1975092, 1975093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.2	97.1	P/P	90 - 110
Arsenic	98.7	97.7	P/P	90 - 110
Cadmium	97.0	97.6	P/P	90 - 110
Cadmium	97.2	96.2	P/P	90 - 110
Copper	97.2	97.0	P/P	90 - 110
Copper	99.1	97.8	P/P	90 - 110
Lead	95.6	95.2	P/P	90 - 110
Lead	96.7	95.7	P/P	90 - 110
Nickel	97.2	96.1	P/P	90 - 110
Nickel	98.7	97.6	P/P	90 - 110
Silver	98.8	98.2	P/P	90 - 110
Silver	99.5	99.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A83040
 Included Lab Sample IDs: 1975092, 1975093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	96.4	93.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A83056
 Included Lab Sample IDs: 1975094, 1975095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	101	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A83172
 Included Lab Sample IDs: 1975094, 1975095, 1975096, 1975097, 1975098, 1975099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	97.9	97.7	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 SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Iron	107	104	103	102		0.920
	Iron	102	98.3	99.7			1.38
	Zinc	101	95.4	97.0	97.0		0.0976
	Zinc	96.9	95.2	93.8			1.53
EPA 200.8 Rev. 5.4	Arsenic	103	101	102	103		0.437
	Arsenic	101	109	110			0.510
	Cadmium	106	106	106	106		0.245

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 200.8 Rev. 5.4	Cadmium	105	97.4	101			3.38
	Chromium	103	99.5	102	102		0.320
	Chromium	102	89.8	89.4			0.454
	Copper	101	96.1	100	101		0.600
	Copper	102	99.5	99.8			0.340
	Lead	104	104	104	105		0.558
	Lead	102	106	108			1.98
	Lead	104	103	104	102		1.07
	Nickel	99.9	92.7	98.5	98.6		0.105
	Nickel	101	98.7	102			3.14
	Silver	101	99.0	105	102		2.59
	Silver	98.2	92.3	92.9			0.655
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	108	111			1.72
	Kjeldahl Nitrogen	102	103	96.6			5.66
	Kjeldahl Nitrogen	102	103	102			0.809
EPA 353.2 Rev. 2.0	NO2NO3-N	101	102	102			0.0
	NO2NO3-N	101	104	103			0.925
	NO2NO3-N	102	94.9	95.9			1.03
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.5	98.4			0.538
	O-Phosphate-P	99.0	98.4	99.1			0.621
	O-Phosphate-P	103	97.3	98.5			0.778
SM 5310 B-00	Organic Carbon	98.6	91.9	92.3			0.211
	Organic Carbon	100	95.6	98.8			1.75
SM 5310 B-00 dissolved	Organic Carbon	98.6	91.9	92.3			0.211
	Organic Carbon	100	95.6	98.8			1.75

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	1975092, 1975093, 1975094, 1975095, 1975096, 1975097, 1975098, 1975099, 1975100
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1975092, 1975093, 1975094, 1975095, 1975096, 1975097, 1975098, 1975099, 1975100
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1975073, 1975074, 1975075, 1975076, 1975077, 1975078, 1975079, 1975080, 1975090
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1975073, 1975074, 1975075, 1975076, 1975077, 1975078, 1975079, 1975080, 1975090
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1975081, 1975082, 1975083, 1975084, 1975085, 1975086, 1975087, 1975088, 1975091
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1975073, 1975074, 1975075, 1975076, 1975077, 1975078, 1975079, 1975080, 1975090
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1975065, 1975066, 1975067, 1975068, 1975069, 1975070, 1975071, 1975072, 1975089

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	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 15:38	Betina Topolski	1975100
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:01	Betina Topolski	1975094
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:12	Betina Topolski	1975095
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:24	Betina Topolski	1975096
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:36	Betina Topolski	1975097
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:48	Betina Topolski	1975098
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/20/2018 17:59	Betina Topolski	1975099
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	03/21/2018 18:55	Betina Topolski	1975092
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	03/21/2018 19:06	Betina Topolski	1975093
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 17:27	Robert K Palmer	1975100
EPA 200.8 Rev. 5.4	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 19:22	Robert K Palmer	1975094
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 19:31	Robert K Palmer	1975095
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 19:41	Robert K Palmer	1975096
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 19:50	Robert K Palmer	1975097
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 20:00	Robert K Palmer	1975098
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	03/30/2018 20:09	Robert K Palmer	1975099
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	04/03/2018 16:41	Robert K Palmer	1975094
	03/15/2018	03/19/2018 19:00	Elliott D. Healy	04/03/2018 16:48	Robert K Palmer	1975095
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	04/03/2018 18:44	Nadine Brooks	1975093
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	04/03/2018 21:27	Nadine Brooks	1975092
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	04/05/2018 03:12	Nadine Brooks	1975093
	03/15/2018	03/20/2018 16:35	Elliott D. Healy	04/05/2018 03:22	Nadine Brooks	1975092
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:02	Nadine Brooks	1975094
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:09	Nadine Brooks	1975095
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:15	Nadine Brooks	1975096
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:22	Nadine Brooks	1975097
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:29	Nadine Brooks	1975098
	03/15/2018	04/09/2018 13:15	Elliott D. Healy	04/11/2018 23:35	Nadine Brooks	1975099
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 09:04	Joseph Suarez	1975090
EPA 351.2 Rev. 2.0	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 09:53	Joseph Suarez	1975073
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 09:55	Joseph Suarez	1975074
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 10:00	Joseph Suarez	1975075
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 10:01	Joseph Suarez	1975076
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 10:03	Joseph Suarez	1975077
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 10:04	Joseph Suarez	1975078
	03/15/2018	03/20/2018 11:50	Adrian Shelby	03/22/2018 10:06	Joseph Suarez	1975079
	03/15/2018	03/21/2018 11:00	Adrian Shelby	03/22/2018 12:38	Joseph Suarez	1975080
	03/15/2018			03/16/2018 11:40	Beverly Y. Sanders	1975073
	03/15/2018			03/16/2018 11:41	Beverly Y. Sanders	1975074
EPA 353.2 Rev. 2.0	03/15/2018			03/16/2018 11:42	Beverly Y. Sanders	1975075

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	03/15/2018			03/16/2018 11:44	Beverly Y. Sanders	1975076
	03/15/2018			03/16/2018 11:45	Beverly Y. Sanders	1975077
	03/15/2018			03/16/2018 11:46	Beverly Y. Sanders	1975078
	03/15/2018			03/16/2018 11:47	Beverly Y. Sanders	1975079
	03/15/2018			03/16/2018 11:54	Beverly Y. Sanders	1975080
	03/15/2018			03/19/2018 10:58	Beverly Y. Sanders	1975090
EPA 365.1 Rev. 2.0 dissolved	03/15/2018			03/15/2018 19:46	Julia Storbeck	1975091
	03/15/2018			03/15/2018 20:03	Julia Storbeck	1975081
	03/15/2018			03/15/2018 20:04	Julia Storbeck	1975082
	03/15/2018			03/15/2018 20:05	Julia Storbeck	1975083
	03/15/2018			03/15/2018 20:06	Julia Storbeck	1975084
	03/15/2018			03/15/2018 20:07	Julia Storbeck	1975085
SM 5310 B-00	03/15/2018			03/15/2018 20:12	Julia Storbeck	1975086
	03/15/2018			03/15/2018 20:13	Julia Storbeck	1975087, 1975088
	03/15/2018			03/24/2018 08:31	Julia Storbeck	1975073
	03/15/2018			03/24/2018 08:45	Julia Storbeck	1975074
	03/15/2018			03/24/2018 09:00	Julia Storbeck	1975075
	03/15/2018			03/24/2018 09:44	Julia Storbeck	1975076
	03/15/2018			03/26/2018 19:22	Megan Treadwell	1975077
	03/15/2018			03/26/2018 20:26	Megan Treadwell	1975078
	03/15/2018			03/26/2018 20:58	Megan Treadwell	1975079
	03/15/2018			03/26/2018 21:13	Megan Treadwell	1975080
	03/15/2018			03/26/2018 22:16	Megan Treadwell	1975090
	03/15/2018			03/24/2018 06:03	Julia Storbeck	1975065
	03/15/2018			03/24/2018 06:47	Julia Storbeck	1975066
	03/15/2018			03/24/2018 07:02	Julia Storbeck	1975067
SM 5310 B-00 dissolved	03/15/2018			03/24/2018 07:16	Julia Storbeck	1975068
	03/15/2018			03/24/2018 07:31	Julia Storbeck	1975069
	03/15/2018			03/24/2018 07:46	Julia Storbeck	1975070
	03/15/2018			03/24/2018 08:01	Julia Storbeck	1975071
	03/15/2018			03/24/2018 08:16	Julia Storbeck	1975072
	03/15/2018			03/26/2018 22:01	Megan Treadwell	1975089