

Chemical Analysis Report

SO-DIST-2018-11-15-02

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-2018-11-05-09**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 26-DEC-2018 12:29



NON-CONFORMANCE REPORT INCLUDED

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: 11/14/2018 12:00

Field ID: G3SD0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041782	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041790	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P354975	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P355141	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P354887	
2041798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P354781	
2041817	EPA 200.7 Rev. 4.4	Iron	83	I	ug/L	P354983	
		Zinc	5.0	U	ug/L	P354983	
	EPA 200.8 Rev. 5.4	Arsenic	1.93		ug/L	P354983	
		Cadmium	0.060	U	ug/L	P354983	
		Chromium	1.2	U	ug/L	P354983	
		Copper	1.1	I	ug/L	P354983	
		Lead	0.15	U	ug/L	P354983	
		Nickel	0.60	U	ug/L	P354983	
		Silver	0.030	U	ug/L	P354983	

Sample Location: Marker # 28

Collection Date/Time: 11/14/2018 12:15

Field ID: G3SD0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041783	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041791	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P354975	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P355141	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P354887	
2041799	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P354781	
2041818	EPA 200.7 Rev. 4.4	Iron	130		ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.92		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.40	U	ug/L	P354910	
		Copper	1.00		ug/L	P354910	
		Lead	0.078	I	ug/L	P354910	
		Nickel	0.39	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Sample Location: Marker # 22

Collection Date/Time: 11/14/2018 12:25

Field ID: G3SD0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041784	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041792	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P354907	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354887	
2041800	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P354775	
2041819	EPA 200.7 Rev. 4.4	Iron	110	I	ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.85		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.40	U	ug/L	P354910	
		Copper	0.87		ug/L	P354910	
		Lead	0.080	I	ug/L	P354910	
		Nickel	0.37	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Sample Location: Old Swing Bridge

Collection Date/Time: 11/14/2018 12:35

Field ID: G3SD0115

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041785	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041793	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P354908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354964	
2041801	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P354775	
2041820	EPA 200.7 Rev. 4.4	Iron	140		ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.81		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.40	U	ug/L	P354910	
		Copper	0.96		ug/L	P354910	
		Lead	0.085	I	ug/L	P354910	
		Nickel	0.43	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MidChannel@OrangeRiver

Collection Date/Time: 11/14/2018 12:47

Field ID: G3SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041786	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041794	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P354908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354964	
2041802	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P354775	
2041821	EPA 200.7 Rev. 4.4	Iron	180		ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.85		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.40	U	ug/L	P354910	
		Copper	0.93		ug/L	P354910	
		Lead	0.098	I	ug/L	P354910	
		Nickel	0.41	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Upstream of Power Plant

Collection Date/Time: 11/14/2018 13:00

Field ID: G3SD0117

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041787	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041795	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P354908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P354964	
2041803	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P354775	
2041822	EPA 200.7 Rev. 4.4	Iron	210	Y	ug/L	P356166	
		Zinc	5.0	UY	ug/L	P356166	
	EPA 200.8 Rev. 5.4	Arsenic	1.76	Y	ug/L	P356166	
		Cadmium	0.020	UY	ug/L	P356166	
		Chromium	0.40	UY	ug/L	P356166	
		Copper	1.03	Y	ug/L	P356166	
		Lead	0.11	IY	ug/L	P356166	
		Nickel	0.43	IY	ug/L	P356166	
		Silver	0.010	UY	ug/L	P356166	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: The sample was preserved improperly.

EPA 200.8 Rev. 5.4: The sample was preserved improperly.

Sample Location: Mid Channel off Oxbow

Collection Date/Time: 11/14/2018 13:15

Field ID: G3SD0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041788	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041796	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P354908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354964	
2041804	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P354780	
2041823	EPA 200.7 Rev. 4.4	Iron	96	I	ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.88		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.40	U	ug/L	P354910	
		Copper	0.85		ug/L	P354910	
		Lead	0.050	I	ug/L	P354910	
		Nickel	0.37	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mid channel off point

Collection Date/Time: 11/14/2018 13:27

Field ID: G3SD0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2041789	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P354887	
2041797	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P354908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P355088	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354964	
2041805	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P354780	
2041824	EPA 200.7 Rev. 4.4	Iron	130		ug/L	P354910	
		Zinc	5.0	U	ug/L	P354910	
	EPA 200.8 Rev. 5.4	Arsenic	1.86		ug/L	P354910	
		Cadmium	0.020	U	ug/L	P354910	
		Chromium	0.79	I	ug/L	P354910	
		Copper	0.88		ug/L	P354910	
		Lead	0.069	I	ug/L	P354910	
		Nickel	0.38	I	ug/L	P354910	
		Silver	0.010	U	ug/L	P354910	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 7329

Event(s)

SO-DIST-2018-11-15-02

Job(s)

TLH-2018-11-15-59

Sample(s)

2041822

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Sample preserved in the laboratory with nitric acid 11/15/2018 at 2:45pm.
HNO3 Lot# 8080070 | Expiration Date: 03/21/2019

Resolution: The pH was accidentally not checked prior to preparation. Checking pH prior to preparation is a method requirement for methods EPA 200.7 and EPA 200.8.

Authorized by/Date: Colin Wright 12/26/2018

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354910

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: P354983

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: P356166

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: P354910

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: P354983

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: P356166

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354975

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355088

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355141

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354775

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354780

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354781

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

Reference Method: SM 5310 B-00
Batch ID: P354887

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P354964

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P354887

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: P354910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Zinc	94.6		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	96.3		P	85 - 115
Zinc	89.6		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P356166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	112		P	85 - 115
Zinc	110		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	107		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	108		P	85 - 115
Copper	104		P	85 - 115
Lead	101		P	85 - 115
Nickel	103		P	85 - 115
Silver	99.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	108		P	85 - 115
Copper	102		P	85 - 115
Lead	101		P	85 - 115
Nickel	102		P	85 - 115
Silver	99.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356166

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354907

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354975

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355088

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355141

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354775

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354780

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.8		P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P354887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P354964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P354887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041687	Iron	101		P	80 - 120
2041687	Zinc	97.0		P	80 - 120
2041739	Iron	111	106	P/P	80 - 120
2041739	Zinc	103	97.7	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041951	Iron	97.4	99.8	P/P	70 - 130
2041951	Zinc	93.5	93.6	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P356166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048374	Iron	116	103	P/P	80 - 120
2048374	Zinc	116	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041687	Arsenic	112		P	80 - 120
2041687	Cadmium	108		P	80 - 120
2041687	Chromium	103		P	80 - 120
2041687	Copper	101		P	80 - 120
2041687	Lead	105		P	80 - 120
2041687	Nickel	103		P	80 - 120
2041687	Silver	100		P	80 - 120
2041739	Arsenic	109	110	P/P	80 - 120
2041739	Cadmium	108	106	P/P	80 - 120
2041739	Chromium	99.1	98.1	P/P	80 - 120
2041739	Copper	104	104	P/P	80 - 120
2041739	Lead	104	104	P/P	80 - 120
2041739	Nickel	103	104	P/P	80 - 120
2041739	Silver	100	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041951	Arsenic	112	114	P/P	80 - 120
2041951	Cadmium	98.4	101	P/P	80 - 120
2041951	Chromium	87.9	89.4	P/P	80 - 120
2041951	Copper	101	101	P/P	80 - 120
2041951	Lead	106	109	P/P	80 - 120
2041951	Nickel	103	105	P/P	80 - 120
2041951	Silver	90.4	92.1	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048374	Arsenic	115	115	P/P	80 - 120
2048374	Cadmium	106	104	P/P	80 - 120
2048374	Chromium	103	103	P/P	80 - 120
2048374	Copper	103	102	P/P	80 - 120
2048374	Lead	106	105	P/P	80 - 120
2048374	Nickel	103	103	P/P	80 - 120
2048374	Silver	98.3	97.7	P/P	80 - 120

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041792	Kjeldahl Nitrogen	98.8	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041856	Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041792	NO2NO3-N	99.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041790	NO2NO3-N	98.4	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041734	O-Phosphate-P	96.1	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041874	O-Phosphate-P	94.5	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041890	O-Phosphate-P	96.7	98.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P354887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041778	Organic Carbon	98.9	96.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P354964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041793	Organic Carbon	97.0	92.2	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P354887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041778	Organic Carbon	98.9	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041739	Iron	4.50	Spike	P	0 - 20
2041739	Zinc	5.16	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P354983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041951	Iron	2.38	Spike	P	0 - 20
2041951	Zinc	0.0281	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P356166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048374	Iron	10.9	Spike	P	0 - 20
2048374	Zinc	13.2	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041739	Arsenic	0.355	Spike	P	0 - 20
2041739	Cadmium	1.63	Spike	P	0 - 20
2041739	Chromium	0.967	Spike	P	0 - 20
2041739	Copper	0.0897	Spike	P	0 - 20
2041739	Lead	0.118	Spike	P	0 - 20
2041739	Nickel	0.694	Spike	P	0 - 20
2041739	Silver	0.127	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P354983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041951	Arsenic	1.83	Spike	P	0 - 20
2041951	Cadmium	3.00	Spike	P	0 - 20
2041951	Chromium	1.61	Spike	P	0 - 20
2041951	Copper	0.595	Spike	P	0 - 20
2041951	Lead	2.26	Spike	P	0 - 20
2041951	Nickel	1.53	Spike	P	0 - 20
2041951	Silver	1.81	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048374	Arsenic	0.393	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048374	Cadmium	1.83	Spike	P	0 - 20
2048374	Chromium	0.160	Spike	P	0 - 20
2048374	Copper	0.595	Spike	P	0 - 20
2048374	Lead	0.861	Spike	P	0 - 20
2048374	Nickel	0.424	Spike	P	0 - 20
2048374	Silver	0.611	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041792	Kjeldahl Nitrogen	5.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041864	Kjeldahl Nitrogen	0.129	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041856	Kjeldahl Nitrogen	0.646	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041792	NO2NO3-N	1.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041790	NO2NO3-N	0.956	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041734	O-Phosphate-P	2.57	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041874	O-Phosphate-P	3.67	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041890	O-Phosphate-P	1.41	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P354887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041778	Organic Carbon	1.70	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P354964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041793	Organic Carbon	2.82	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P354887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041778	Organic Carbon	1.70	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: A87803

Included Lab Sample IDs: 2041798, 2041799, 2041800, 2041801, 2041802, 2041803, 2041804, 2041805

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.2	P/P	90 - 110
O-Phosphate-P	99.2	99.4	P/P	90 - 110
O-Phosphate-P	99.4	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A87846

Included Lab Sample IDs: 2041790, 2041791, 2041792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A87846

Included Lab Sample IDs: 2041782, 2041783, 2041784, 2041785, 2041786, 2041787, 2041788, 2041789

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	96.0	P/P	90 - 110
Organic Carbon	94.1	94.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A87888

Included Lab Sample IDs: 2041793, 2041794, 2041795, 2041796, 2041797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.8	94.0	P/P	90 - 110
Organic Carbon	94.0	94.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87899

Included Lab Sample IDs: 2041792, 2041793, 2041794, 2041795, 2041796, 2041797

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	99.3	P/P	90 - 110
Kjeldahl Nitrogen	99.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87911

Included Lab Sample IDs: 2041790, 2041791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87940

Included Lab Sample IDs: 2041818, 2041819, 2041820, 2041821, 2041823, 2041824

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	105	P/P	90 - 110
Zinc	97.8	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A87944

Included Lab Sample IDs: 2041818, 2041819, 2041820, 2041821, 2041823, 2041824

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	102	P/P	90 - 110
Cadmium	101	99.7	P/P	90 - 110
Chromium	103	99.6	P/P	90 - 110
Copper	101	101	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Nickel	100	101	P/P	90 - 110
Silver	96.3	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87948

Included Lab Sample IDs: 2041792, 2041793, 2041794, 2041795, 2041796, 2041797

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87974

Included Lab Sample IDs: 2041790, 2041791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A87982

Included Lab Sample IDs: 2041817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.4	98.3	P/P	90 - 110
Zinc	92.2	99.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88076

Included Lab Sample IDs: 2041817

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	103	P/P	90 - 110
Cadmium	104	103	P/P	90 - 110
Chromium	104	100	P/P	90 - 110
Copper	104	102	P/P	90 - 110
Lead	102	103	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Silver	97.9	97.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88384

Included Lab Sample IDs: 2041822

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88384

Included Lab Sample IDs: 2041822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	103	105	P/P	90 - 110
Lead	105	104	P/P	90 - 110
Nickel	104	105	P/P	90 - 110
Silver	99.0	99.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88386

Included Lab Sample IDs: 2041822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.1	103	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Iron	106	101	111	106		4.50
	Iron	96.3	97.4	99.8			2.38
	Iron	112	116	103			10.9
	Zinc	94.6	97.0	103	97.7		5.16
	Zinc	89.6	93.5	93.6			0.0281
	Zinc	110	116	102			13.2
EPA 200.8 Rev. 5.4	Arsenic	107	112	109	110		0.355
	Arsenic	103	112	114			1.83
	Arsenic	105	115	115			0.393
	Cadmium	104	108	108	106		1.63
	Cadmium	107	98.4	101			3.00
	Cadmium	105	106	104			1.83
	Chromium	108	103	99.1	98.1		0.967
	Chromium	108	87.9	89.4			1.61
	Chromium	104	103	103			0.160
	Copper	104	101	104	104		0.0897
	Copper	102	101	101			0.595
	Copper	103	103	102			0.595
	Lead	101	105	104	104		0.118
	Lead	101	106	109			2.26
	Lead	102	106	105			0.861
	Nickel	103	103	103	104		0.694
	Nickel	102	103	105			1.53
	Nickel	104	103	103			0.424
	Silver	99.0	100	100	100		0.127
	Silver	99.2	90.4	92.1			1.81
	Silver	102	98.3	97.7			0.611
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	98.8	109			5.23
	Kjeldahl Nitrogen	105					0.129
	Kjeldahl Nitrogen	100	104	105			0.646
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.6	102			1.77
	NO2NO3-N	99.0	98.4	99.4			0.956
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	96.1	98.6			2.57
	O-Phosphate-P	102	94.5	98.2			3.67
	O-Phosphate-P	99.8	96.7	98.9			1.41
SM 5310 B-00	Organic Carbon	93.6	98.9	96.6			1.70
	Organic Carbon	93.2	97.0	92.2			2.82
SM 5310 B-00 dissolved	Organic Carbon	93.6	98.9	96.6			1.70

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	2041817, 2041818, 2041819, 2041820, 2041821, 2041822, 2041823, 2041824
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2041817, 2041818, 2041819, 2041820, 2041821, 2041822, 2041823, 2041824
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2041790, 2041791, 2041792, 2041793, 2041794, 2041795, 2041796, 2041797
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2041790, 2041791, 2041792, 2041793, 2041794, 2041795, 2041796, 2041797
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2041798, 2041799, 2041800, 2041801, 2041802, 2041803, 2041804, 2041805
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2041790, 2041791, 2041792, 2041793, 2041794, 2041795, 2041796, 2041797

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2041782, 2041783, 2041784, 2041785, 2041786, 2041787, 2041788, 2041789

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	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 17:59	Betina Topolski	2041818
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 18:06	Betina Topolski	2041819
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 18:14	Betina Topolski	2041820
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 18:22	Betina Topolski	2041821
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 18:37	Betina Topolski	2041823
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/20/2018 18:44	Betina Topolski	2041824
	11/15/2018	11/20/2018 14:40	Elliott D. Healy	11/27/2018 22:53	Betina Topolski	2041817
	11/15/2018	12/14/2018 11:40	Elliott D. Healy	12/17/2018 15:03	Betina Topolski	2041822
EPA 200.8 Rev. 5.4	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 20:17	Allison Taylor	2041818
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 20:27	Allison Taylor	2041819
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 20:36	Allison Taylor	2041820
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 20:46	Allison Taylor	2041821
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 21:05	Allison Taylor	2041823
	11/15/2018	11/19/2018 13:25	Elliott D. Healy	11/21/2018 21:15	Allison Taylor	2041824
	11/15/2018	11/20/2018 14:40	Elliott D. Healy	11/30/2018 09:53	Allison Taylor	2041817
	11/15/2018	12/14/2018 11:40	Elliott D. Healy	12/15/2018 07:10	Allison Taylor	2041822
EPA 351.2 Rev. 2.0	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 14:53	Joseph Suarez	2041792
	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 15:01	Joseph Suarez	2041793
	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 15:02	Joseph Suarez	2041794
	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 15:04	Joseph Suarez	2041795
	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 15:09	Joseph Suarez	2041796
	11/15/2018	11/19/2018 15:45	Adrian Shelby	11/20/2018 15:10	Joseph Suarez	2041797
	11/15/2018	11/20/2018 10:20	Adrian Shelby	11/21/2018 09:15	Joseph Suarez	2041790
	11/15/2018	11/20/2018 10:20	Adrian Shelby	11/21/2018 09:16	Joseph Suarez	2041791
EPA 353.2 Rev. 2.0	11/15/2018			11/26/2018 11:30	Lauren Bottorf	2041792
	11/15/2018			11/26/2018 11:38	Lauren Bottorf	2041793
	11/15/2018			11/26/2018 11:40	Lauren Bottorf	2041794
	11/15/2018			11/26/2018 11:41	Lauren Bottorf	2041795
	11/15/2018			11/26/2018 11:42	Lauren Bottorf	2041796
	11/15/2018			11/26/2018 11:43	Lauren Bottorf	2041797
	11/15/2018			11/27/2018 11:29	Lauren Bottorf	2041790
	11/15/2018			11/27/2018 11:39	Lauren Bottorf	2041791
EPA 365.1 Rev. 2.0 dissolved	11/15/2018			11/15/2018 17:12	Jhamieka S. Greenwood	2041805
	11/15/2018			11/15/2018 17:28	Jhamieka S. Greenwood	2041803
	11/15/2018			11/15/2018 17:36	Jhamieka S. Greenwood	2041804
	11/15/2018			11/15/2018 17:37	Jhamieka S. Greenwood	2041801
	11/15/2018			11/15/2018 17:38	Jhamieka S. Greenwood	2041802
	11/15/2018			11/15/2018 17:39	Jhamieka S. Greenwood	2041800
	11/15/2018			11/15/2018 17:42	Jhamieka S. Greenwood	2041798
	11/15/2018			11/15/2018 17:43	Jhamieka S. Greenwood	2041799

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	11/15/2018			11/17/2018 08:35	Megan Treadwell	2041790
	11/15/2018			11/17/2018 08:48	Megan Treadwell	2041791
	11/15/2018			11/17/2018 09:02	Megan Treadwell	2041792
	11/15/2018			11/19/2018 15:15	Megan Treadwell	2041793
	11/15/2018			11/19/2018 16:10	Megan Treadwell	2041794
	11/15/2018			11/19/2018 18:37	Megan Treadwell	2041795
	11/15/2018			11/19/2018 18:50	Megan Treadwell	2041796
	11/15/2018			11/19/2018 19:03	Megan Treadwell	2041797
	11/15/2018			11/17/2018 06:19	Megan Treadwell	2041782
SM 5310 B-00 dissolved	11/15/2018			11/17/2018 07:00	Megan Treadwell	2041783
	11/15/2018			11/17/2018 07:14	Megan Treadwell	2041784
	11/15/2018			11/17/2018 07:27	Megan Treadwell	2041785
	11/15/2018			11/17/2018 07:41	Megan Treadwell	2041786
	11/15/2018			11/17/2018 07:54	Megan Treadwell	2041787
	11/15/2018			11/17/2018 08:08	Megan Treadwell	2041788
	11/15/2018			11/17/2018 08:21	Megan Treadwell	2041789