Chemical Analysis Report

SO-DIST-2018-12-12-02

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-2018-12-03-09**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 09-JAN-2019 16:59

B. Steinbock

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: 12/11/2018 11:22**

Field ID: G3SD0112 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048343	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048351	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356573	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P356276	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P356144	
2048359	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.080		mg P/L	P356057	
2048368	EPA 200.7 Rev. 4.4	Iron	180		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.59		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.40	U	ug/L	P356238	
		Copper	1.13		ug/L	P356238	
		Lead	0.13	I	ug/L	P356238	
		Nickel	0.39	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: Marker # 28 **Collection Date/Time: 12/11/2018 11:35**

Field ID: G3SD0113 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048344	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048352	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P356573	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P356276	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048360	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.079		mg P/L	P356058	
2048369	EPA 200.7 Rev. 4.4	Iron	360		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.58		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.84	I	ug/L	P356238	
		Copper	1.24		ug/L	P356238	
		Lead	0.24		ug/L	P356238	
		Nickel	0.47	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: Marker # 22 **Collection Date/Time: 12/11/2018 11:50**

Field ID: G3SD0114 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048345	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048353	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356247	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P356240	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048361	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.065		mg P/L	P356059	
2048370	EPA 200.7 Rev. 4.4	Iron	140		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.50		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.40	U	ug/L	P356238	
		Copper	0.95		ug/L	P356238	
		Lead	0.10	I	ug/L	P356238	
		Nickel	0.35	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: Old Swing Bridge **Collection Date/Time: 12/11/2018 12:00**

Field ID: G3SD0115 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048346	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048354	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356247	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P356241	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048362	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P356059	
2048371	EPA 200.7 Rev. 4.4	Iron	150		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.47		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.40	U	ug/L	P356238	
		Copper	0.91		ug/L	P356238	
		Lead	0.10	I	ug/L	P356238	
		Nickel	0.37	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: MidChannel@OrangeRiver **Collection Date/Time: 12/11/2018 12:17**

Field ID: G3SD0116 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048347	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048355	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356250	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P356241	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048363	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P356059	
2048372	EPA 200.7 Rev. 4.4	Iron	230		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.53		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.52	I	ug/L	P356238	
		Copper	1.0		ug/L	P356238	
		Lead	0.14	I	ug/L	P356238	
		Nickel	0.42	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: Upstream of Power Plant **Collection Date/Time: 12/11/2018 12:35**

Field ID: G3SD0117 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048348	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048356	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P356250	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P356241	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048364	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P356059	
2048373	EPA 200.7 Rev. 4.4	Iron	170		ug/L	P356238	
		Zinc	5.0	U	ug/L	P356238	
	EPA 200.8 Rev. 5.4	Arsenic	1.48		ug/L	P356238	
		Cadmium	0.020	U	ug/L	P356238	
		Chromium	0.40	U	ug/L	P356238	
		Copper	0.93		ug/L	P356238	
		Lead	0.10	I	ug/L	P356238	
		Nickel	0.38	I	ug/L	P356238	
		Silver	0.010	U	ug/L	P356238	

Sample Location: Mid Channel off Oxbow **Collection Date/Time: 12/11/2018 12:50**

Field ID: G3SD0118 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048349	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048357	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P356250	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P356241	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048365	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P356059	
2048374	EPA 200.7 Rev. 4.4	Iron	170		ug/L	P356166	
		Zinc	5.0	U	ug/L	P356166	
	EPA 200.8 Rev. 5.4	Arsenic	1.55		ug/L	P356166	
		Cadmium	0.020	U	ug/L	P356166	
		Chromium	0.40	U	ug/L	P356166	
		Copper	0.87		ug/L	P356166	
		Lead	0.096	I	ug/L	P356166	
		Nickel	0.42	I	ug/L	P356166	
		Silver	0.010	U	ug/L	P356166	

Sample Location: Mid channel off point **Collection Date/Time: 12/11/2018 12:56**

Field ID: G3SD0119 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2048350	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P356144	
2048358	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P356250	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P356241	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356206	
2048366	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.043		mg P/L	P356059	
2048375	EPA 200.7 Rev. 4.4	Iron	170		ug/L	P356166	
		Zinc	5.0	U	ug/L	P356166	
	EPA 200.8 Rev. 5.4	Arsenic	1.57		ug/L	P356166	
		Cadmium	0.020	U	ug/L	P356166	
		Chromium	0.40	U	ug/L	P356166	
		Copper	0.87		ug/L	P356166	
		Lead	0.11	I	ug/L	P356730	
		Nickel	0.43	I	ug/L	P356166	
		Silver	0.010	U	ug/L	P356166	

Quality Assurance Report
Method Blank Results

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 200.7 Rev. 4.4
Batch ID: P356238

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: 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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356238

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: P356730

Component	Result	Code	Units
Lead	0.050	U	ug/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356247

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356250

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: P356573

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356240

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356241

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356276

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356058

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356059

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

Reference Method: SM 5310 B-00
Batch ID: P356144

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

Reference Method: SM 5310 B-00
Batch ID: P356206

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: P356144

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: P356166

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P356238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	108		P	85 - 115
Zinc	103		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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	99.6		P	85 - 115
Chromium	98.8		P	85 - 115
Copper	101		P	85 - 115
Lead	95.7		P	85 - 115
Nickel	102		P	85 - 115
Silver	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	92.6		P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356247

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: P356250

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356573

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356240

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356241

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356276

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: P356057

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356058

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: P356059

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

Reference Method: SM 5310 B-00
Batch ID: P356144

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

Reference Method: SM 5310 B-00
Batch ID: P356206

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00 dissolved
Batch ID: P356144

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

Quality Assurance Report
Matrix Spike Accuracy

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 200.7 Rev. 4.4
Batch ID: P356238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048865	Iron	110		P	80 - 120
2048865	Zinc	105		P	80 - 120
2049065	Iron	111	112	P/P	80 - 120
2049065	Zinc	107	106	P/P	80 - 120

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 200.8 Rev. 5.4
Batch ID: P356238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048865	Arsenic	104		P	80 - 120
2048865	Cadmium	102		P	80 - 120
2048865	Chromium	103		P	80 - 120
2048865	Copper	101		P	80 - 120
2048865	Lead	96.1		P	80 - 120
2048865	Nickel	102		P	80 - 120
2048865	Silver	101		P	80 - 120
2049065	Arsenic	106	106	P/P	80 - 120
2049065	Cadmium	104	104	P/P	80 - 120
2049065	Chromium	104	104	P/P	80 - 120
2049065	Copper	103	105	P/P	80 - 120
2049065	Lead	99.5	99.1	P/P	80 - 120
2049065	Nickel	104	104	P/P	80 - 120
2049065	Silver	104	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047169	Lead	95.3		P	80 - 120
2047436	Lead	94.6	96.1	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048596	Kjeldahl Nitrogen	101	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048356	Kjeldahl Nitrogen	96.1	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048235	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048136	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048354	NO2NO3-N	98.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048250	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048256	O-Phosphate-P	94.9	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048360	O-Phosphate-P	94.8	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048365	O-Phosphate-P	94.8	96.2	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P356144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048157	Organic Carbon	99.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P356206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048352	Organic Carbon	103	99.7	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P356144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048157	Organic Carbon	99.0		P	85 - 115

Quality Assurance Report
Precision

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 200.7 Rev. 4.4
Batch ID: P356238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049065	Iron	1.31	Spike	P	0 - 20
2049065	Zinc	1.12	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
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 200.8 Rev. 5.4
Batch ID: P356238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049065	Arsenic	0.474	Spike	P	0 - 20
2049065	Cadmium	0.190	Spike	P	0 - 20
2049065	Chromium	0.219	Spike	P	0 - 20
2049065	Copper	0.960	Spike	P	0 - 20
2049065	Lead	0.386	Spike	P	0 - 20
2049065	Nickel	0.443	Spike	P	0 - 20
2049065	Silver	1.46	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P356730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047436	Lead	1.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048596	Kjeldahl Nitrogen	3.12	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048356	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048235	Kjeldahl Nitrogen	1.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048136	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048354	NO2NO3-N	0.377	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048250	NO2NO3-N	0.445	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048256	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048360	O-Phosphate-P	0.172	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048365	O-Phosphate-P	0.999	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P356144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048157	Organic Carbon	1.46	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P356206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048352	Organic Carbon	1.92	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P356144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048157	Organic Carbon	1.46	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: A88313
Included Lab Sample IDs: 2048359, 2048360, 2048361, 2048362, 2048363, 2048364, 2048365, 2048366

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	99.0	P/P	90 - 110
O-Phosphate-P	98.2	98.6	P/P	90 - 110
O-Phosphate-P	99.0	98.2	P/P	90 - 110
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A88343
Included Lab Sample IDs: 2048351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved
Run ID: A88343
Included Lab Sample IDs: 2048343, 2048344, 2048345, 2048346, 2048347, 2048348, 2048349, 2048350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A88375
Included Lab Sample IDs: 2048352, 2048353, 2048354, 2048355, 2048356, 2048357, 2048358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	99.7	P/P	90 - 110
Organic Carbon	99.7	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A88382
Included Lab Sample IDs: 2048351, 2048352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A88384
Included Lab Sample IDs: 2048374

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
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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A88385
Included Lab Sample IDs: 2048353, 2048354, 2048355, 2048356, 2048357, 2048358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A88386
Included Lab Sample IDs: 2048374, 2048375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	99.1	P/P	90 - 110
Zinc	106	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88412
Included Lab Sample IDs: 2048353, 2048354

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A88421
Included Lab Sample IDs: 2048375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	106	P/P	90 - 110
Cadmium	99.4	102	P/P	90 - 110
Chromium	99.9	103	P/P	90 - 110
Copper	102	107	P/P	90 - 110
Nickel	102	107	P/P	90 - 110
Silver	99.6	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A88445
Included Lab Sample IDs: 2048368, 2048369, 2048370, 2048371, 2048372, 2048373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	101	P/P	90 - 110
Zinc	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88472
Included Lab Sample IDs: 2048355, 2048356, 2048357, 2048358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.2	93.1	P/P	90 - 110
Kjeldahl Nitrogen	94.8	92.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88530
Included Lab Sample IDs: 2048351, 2048352

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A88530
Included Lab Sample IDs: 2048351, 2048352

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A88601
Included Lab Sample IDs: 2048368, 2048369, 2048370, 2048371, 2048372, 2048373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	103	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Chromium	102	100	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Lead	97.7	99.4	P/P	90 - 110
Nickel	101	101	P/P	90 - 110
Silver	99.9	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A88625
Included Lab Sample IDs: 2048375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	96.0	95.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.7 Rev. 4.4	Iron	112	116	103				10.9
	Iron	108	110	111	112			1.31
	Zinc	110	116	102				13.2
	Zinc	103	105	107	106			1.12
EPA 200.8 Rev. 5.4	Arsenic	105	115	115				0.393
	Arsenic	105	104	106	106			0.474
	Cadmium	105	106	104				1.83
	Cadmium	99.6	102	104	104			0.190
	Chromium	104	103	103				0.160
	Chromium	98.8	103	104	104			0.219
	Copper	103	103	102				0.595
	Copper	101	101	103	105			0.960
	Lead	102	106	105				0.861
	Lead	95.7	96.1	99.5	99.1			0.386
	Lead	92.6	95.3	94.6	96.1			1.49
	Nickel	104	103	103				0.424
	Nickel	102	102	104	104			0.443
	Silver	102	98.3	97.7				0.611
	Silver	100	101	104	102			1.46
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	95.5				3.12
	Kjeldahl Nitrogen	97.3	96.1	98.9				1.48
	Kjeldahl Nitrogen	101	104	106				1.70
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	102				0.491
	NO2NO3-N	100	98.2					0.377
	NO2NO3-N	104	104	104				0.445
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.7	94.9	96.9				1.12
	O-Phosphate-P	102	94.8	95.1				0.172
	O-Phosphate-P	97.9	94.8	96.2				0.999
SM 5310 B-00	Organic Carbon	92.2	99.0					1.46
	Organic Carbon	99.8	103	99.7				1.92
SM 5310 B-00 dissolved	Organic Carbon	92.2	99.0					1.46

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	2048368, 2048369, 2048370, 2048371, 2048372, 2048373, 2048374, 2048375
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2048368, 2048369, 2048370, 2048371, 2048372, 2048373, 2048374, 2048375
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2048351, 2048352, 2048353, 2048354, 2048355, 2048356, 2048357, 2048358
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2048351, 2048352, 2048353, 2048354, 2048355, 2048356, 2048357, 2048358
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2048359, 2048360, 2048361, 2048362, 2048363, 2048364, 2048365, 2048366
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2048351, 2048352, 2048353, 2048354, 2048355, 2048356, 2048357, 2048358
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2048343, 2048344, 2048345, 2048346, 2048347, 2048348, 2048349, 2048350

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	12/12/2018	12/14/2018 11:40	Elliott D. Healy	12/17/2018 14:23	Betina Topolski	2048375
	12/12/2018	12/14/2018 11:40	Elliott D. Healy	12/17/2018 14:28	Betina Topolski	2048374
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 16:28	Martin Acosta	2048368
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 16:36	Martin Acosta	2048369
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 16:47	Martin Acosta	2048370
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 16:54	Martin Acosta	2048371
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 17:06	Martin Acosta	2048372
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	12/19/2018 17:13	Martin Acosta	2048373
EPA 200.8 Rev. 5.4	12/12/2018	01/02/2019 12:20	Elliott D. Healy	01/03/2019 21:08	Robert K Palmer	2048375
	12/12/2018	12/14/2018 11:40	Elliott D. Healy	12/15/2018 07:38	Allison Taylor	2048374
	12/12/2018	12/14/2018 11:40	Elliott D. Healy	12/18/2018 21:40	Allison Taylor	2048375
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:07	Robert K Palmer	2048368
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:16	Robert K Palmer	2048369
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:26	Robert K Palmer	2048370
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:35	Robert K Palmer	2048371
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:45	Robert K Palmer	2048372
	12/12/2018	12/18/2018 13:05	Elliott D. Healy	01/03/2019 04:54	Robert K Palmer	2048373
EPA 351.2 Rev. 2.0	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/18/2018 11:08	Chelsea Hernandez	2048353
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/18/2018 11:10	Chelsea Hernandez	2048354
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/20/2018 11:03	Chelsea Hernandez	2048355
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/20/2018 11:05	Chelsea Hernandez	2048356
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/20/2018 11:12	Chelsea Hernandez	2048357
	12/12/2018	12/17/2018 14:00	Adrian Shelby	12/20/2018 11:14	Chelsea Hernandez	2048358
	12/12/2018	12/26/2018 10:45	Adrian Shelby	12/27/2018 11:33	Joseph Suarez	2048351
	12/12/2018	12/26/2018 10:45	Adrian Shelby	12/27/2018 11:35	Joseph Suarez	2048352
EPA 353.2 Rev. 2.0	12/12/2018			12/14/2018 12:21	Beverly Y. Sanders	2048351
	12/12/2018			12/14/2018 12:22	Beverly Y. Sanders	2048352
	12/12/2018			12/17/2018 11:16	Beverly Y. Sanders	2048353
	12/12/2018			12/17/2018 11:23	Beverly Y. Sanders	2048354
	12/12/2018			12/17/2018 11:29	Beverly Y. Sanders	2048355
	12/12/2018			12/17/2018 11:30	Beverly Y. Sanders	2048356
	12/12/2018			12/17/2018 11:31	Beverly Y. Sanders	2048357
	12/12/2018			12/17/2018 11:32	Beverly Y. Sanders	2048358
EPA 365.1 Rev. 2.0 dissolved	12/12/2018			12/12/2018 16:34	Jhamieka S. Greenwood	2048360
	12/12/2018			12/12/2018 16:43	Jhamieka S. Greenwood	2048365
	12/12/2018			12/12/2018 17:01	Jhamieka S. Greenwood	2048361
	12/12/2018			12/12/2018 17:09	Jhamieka S. Greenwood	2048362
	12/12/2018			12/12/2018 17:10	Jhamieka S. Greenwood	2048363
	12/12/2018			12/12/2018 17:11	Jhamieka S. Greenwood	2048364
	12/12/2018			12/12/2018 17:12	Jhamieka S. Greenwood	2048366

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	12/12/2018			12/12/2018 17:27	Jhamieka S. Greenwood	2048359
SM 5310 B-00	12/12/2018			12/14/2018 02:14	Megan Treadwell	2048351
	12/12/2018			12/14/2018 13:32	Megan Treadwell	2048352
	12/12/2018			12/14/2018 14:26	Megan Treadwell	2048353
	12/12/2018			12/14/2018 14:53	Megan Treadwell	2048354
	12/12/2018			12/14/2018 15:06	Megan Treadwell	2048355
	12/12/2018			12/14/2018 15:48	Megan Treadwell	2048356
	12/12/2018			12/14/2018 16:01	Megan Treadwell	2048357
	12/12/2018			12/14/2018 16:15	Megan Treadwell	2048358
SM 5310 B-00 dissolved	12/12/2018			12/14/2018 01:03	Megan Treadwell	2048346
	12/12/2018			12/14/2018 01:17	Megan Treadwell	2048347
	12/12/2018			12/14/2018 01:33	Megan Treadwell	2048348
	12/12/2018			12/14/2018 01:48	Megan Treadwell	2048349
	12/12/2018			12/14/2018 02:02	Megan Treadwell	2048350
	12/12/2018			12/14/2018 12:22	Megan Treadwell	2048343
	12/12/2018			12/14/2018 12:39	Megan Treadwell	2048344
	12/12/2018			12/14/2018 12:51	Megan Treadwell	2048345