Chemical Analysis Report

SE-DIST-2018-08-30-01

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

Event Description: **SMP- WPB Run**
Request ID: **RQ-2018-08-27-27**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
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Certified by: Colin Wright, Program Administrator

Date Certified: 20-SEP-2018 09:09

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: C-16N West of Bellaggio **Collection Date/Time: 08/29/2018 12:00**

Field ID: G3SE0031 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020964	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P351227	
		Sulfate	10		mg SO4/L	P351229	
	SM 2120 B	Color (true)	53		PCU	P350971	
	SM 2320 B-97	Total Alkalinity	210		mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	314	A	mg/L	P351243	
	SM 2540 D-97	TSS	5	IA	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P351372	
2020965	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P351132	
2020966	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P350974	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: M-Canal @ Haverhill **Collection Date/Time: 08/29/2018 15:15**

Field ID: G3SE0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020961	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P351227	
		Sulfate	5.4		mg SO4/L	P351229	
	SM 2120 B	Color (true)	43		PCU	P350971	
	SM 2320 B-97	Total Alkalinity	65	A	mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	151		mg/L	P351243	
	SM 2540 D-97	TSS	6	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P351372	
2020962	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P351132	
2020963	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350974	
2021026	EPA 200.7 Rev. 4.4	Calcium	23.0		mg/L	P351064	
		Iron	190		ug/L	P351064	
		Magnesium	4.67		mg/L	P351064	
		Potassium	2.9		mg/L	P351064	
		Sodium	18.2		mg/L	P351064	
		Zinc	5.0	U	ug/L	P351064	
	EPA 200.8 Rev. 5.4	Arsenic	0.44		ug/L	P351064	
		Cadmium	0.020	U	ug/L	P351064	
		Chromium	0.40	U	ug/L	P351064	
		Copper	0.40	I	ug/L	P351064	
		Lead	0.17	I	ug/L	P351064	
		Nickel	0.20	U	ug/L	P351064	
		Silver	0.010	U	ug/L	P351064	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South Shore Blvd 2 "ACME NORTH" **Collection Date/Time: 08/29/2018 12:25**

Field ID: G3SE0004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020973	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	48		mg Cl/L	P351227	
		Sulfate	35		mg SO4/L	P351229	
	SM 2120 B	Color (true)	36		PCU	P350971	
	SM 2320 B-97	Total Alkalinity	223		mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	366		mg/L	P351243	
	SM 2540 D-97	TSS	8	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P351372	
2020974	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P351132	
2020975	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350974	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: ACME South **Collection Date/Time: 08/29/2018 12:45**

Field ID: G3SE0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020976	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	56		mg Cl/L	P351227	
		Sulfate	15		mg SO4/L	P351229	
	SM 2120 B	Color (true)	79		PCU	P350971	
	SM 2320 B-97	Total Alkalinity	195		mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	340		mg/L	P351243	
	SM 2540 D-97	TSS	7	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P351372	
2020977	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P351132	
2020978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P350974	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: WCA1 North @ 6-301 **Collection Date/Time: 08/29/2018 14:00**

Field ID: G5SE0046 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020967	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P351227	
		Sulfate	57		mg SO4/L	P351229	
	SM 2120 B	Color (true)	120		PCU	P350971	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	475		mg/L	P351243	
	SM 2540 D-97	TSS	2	I	mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.34		mg F/L	P351372	
2020969	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P351132	
2020971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P350974	
2021027	EPA 200.7 Rev. 4.4	Calcium	55.5		mg/L	P351064	
		Iron	43	I	ug/L	P351064	
		Magnesium	21.1		mg/L	P351064	
		Potassium	7.6		mg/L	P351064	
		Sodium	72.5		mg/L	P351064	
		Zinc	5.0	U	ug/L	P351064	
	EPA 200.8 Rev. 5.4	Arsenic	1.66		ug/L	P351064	
		Cadmium	0.020	U	ug/L	P351064	
		Chromium	0.40	U	ug/L	P351064	
		Copper	0.20	U	ug/L	P351064	
		Lead	0.058	I	ug/L	P351064	
		Nickel	0.20	U	ug/L	P351064	
		Silver	0.010	U	ug/L	P351064	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: WCA-1 @ S-5 **Collection Date/Time: 08/29/2018 14:20**

Field ID: G5SE0061 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2020968	EPA 180.1 Rev. 2.0	Turbidity	32		NTU	P351089	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P351227	
		Sulfate	59		mg SO4/L	P351229	
	SM 2120 B	Color (true)	78	A	PCU	P350973	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P351367	
	SM 2540 C-97	TDS	452		mg/L	P351243	
	SM 2540 D-97	TSS	25		mg/L	P351093	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P351372	
2020970	EPA 350.1 Rev. 2.0	Ammonia-N	0.27		mg N/L	P351087	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P351026	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P351130	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P351012	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P351132	
2020972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P350974	
2021028	EPA 200.7 Rev. 4.4	Calcium	65.7		mg/L	P351064	
		Iron	790		ug/L	P351064	
		Magnesium	17.3		mg/L	P351064	
		Potassium	6.8		mg/L	P351064	
		Sodium	64.5		mg/L	P351064	
		Zinc	5.0	U	ug/L	P351064	
	EPA 200.8 Rev. 5.4	Arsenic	2.41		ug/L	P351064	
		Cadmium	0.020	U	ug/L	P351064	
		Chromium	0.95	I	ug/L	P351064	
		Copper	1.28		ug/L	P351064	
		Lead	0.56		ug/L	P351064	
		Nickel	0.81		ug/L	P351064	
		Silver	0.010	U	ug/L	P351064	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351089

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351064

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351064

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351227

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351229

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351087

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351026

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351130

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351012

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350974

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

Reference Method: SM 2120 B
Batch ID: P350971

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P350973

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P351367

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

Reference Method: SM 2540 C-97
Batch ID: P351243

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351093

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P351372

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P351132

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: P351064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	107		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	104		P	85 - 115
Sodium	100		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	99.8		P	85 - 115
Chromium	99.0		P	85 - 115
Copper	100		P	85 - 115
Lead	104		P	85 - 115
Nickel	100		P	85 - 115
Silver	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351227

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351229

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351087

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351026

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351130

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351012

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350974

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

Reference Method: SM 2120 B
Batch ID: P350971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.7		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P350973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P351367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351132

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021180	Calcium	102		P	80 - 120
2021180	Iron	108		P	80 - 120
2021180	Magnesium	110		P	80 - 120
2021180	Potassium	104		P	80 - 120
2021180	Sodium	99.4		P	80 - 120
2021180	Zinc	105		P	80 - 120
2021276	Calcium	108		P	80 - 120
2021276	Iron	112	108	P/P	80 - 120
2021276	Magnesium	107		P	80 - 120
2021276	Potassium	107	102	P/P	80 - 120
2021276	Sodium	102		P	80 - 120
2021276	Zinc	103	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021180	Arsenic	101		P	80 - 120
2021180	Cadmium	103		P	80 - 120
2021180	Chromium	98.9		P	80 - 120
2021180	Copper	95.4		P	80 - 120
2021180	Lead	104		P	80 - 120
2021180	Nickel	97.7		P	80 - 120
2021180	Silver	103		P	80 - 120
2021276	Arsenic	103	101	P/P	80 - 120
2021276	Cadmium	103	103	P/P	80 - 120
2021276	Chromium	99.5	97.6	P/P	80 - 120
2021276	Copper	94.7	92.2	P/P	80 - 120
2021276	Lead	100	99.2	P/P	80 - 120
2021276	Nickel	96.5	94.1	P/P	80 - 120
2021276	Silver	101	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020917	Chloride	101		P	90 - 110
2021046	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020917	Sulfate	98.1		P	90 - 110
2021046	Sulfate	91.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020962	Ammonia-N	101	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2021049	Kjeldahl Nitrogen	94.1	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020931	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020974	Total-P	96.6	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020963	O-Phosphate-P	96.8	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P351372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020961	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2020931	Organic Carbon	94.6	95.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020961	Turbidity	1.45	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021276	Calcium	1.79	Spike	P	0 - 20
2021276	Iron	3.11	Spike	P	0 - 20
2021276	Magnesium	3.58	Spike	P	0 - 20
2021276	Potassium	2.96	Spike	P	0 - 20
2021276	Sodium	2.17	Spike	P	0 - 20
2021276	Zinc	0.545	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021276	Arsenic	1.88	Spike	P	0 - 20
2021276	Cadmium	0.697	Spike	P	0 - 20
2021276	Chromium	1.96	Spike	P	0 - 20
2021276	Copper	2.64	Spike	P	0 - 20
2021276	Lead	1.20	Spike	P	0 - 20
2021276	Nickel	2.46	Spike	P	0 - 20
2021276	Silver	0.208	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020917	Chloride	5.78	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P351229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020917	Sulfate	9.26	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020962	Ammonia-N	0.315	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2021049	Kjeldahl Nitrogen	2.24	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020931	NO2NO3-N	0.818	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020974	Total-P	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020963	O-Phosphate-P	0.515	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020929	Color (true)	2.52	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020968	Color (true)	4.61	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020961	Total Alkalinity	0.119	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P351243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020964	TDS	1.59	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500 F-C-97
Batch ID: P351372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020961	Fluoride	0.484	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P351132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2020931	Organic Carbon	0.724	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: SM 2120 B
Run ID: A86213
Included Lab Sample IDs: 2020961, 2020964, 2020967, 2020968, 2020973, 2020976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	98.1	P/P	90 - 115
Color (true)	99.4	98.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A86214
Included Lab Sample IDs: 2020963, 2020966, 2020971, 2020972, 2020975, 2020978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86254
Included Lab Sample IDs: 2020965, 2020970, 2020977

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86265
Included Lab Sample IDs: 2020962, 2020969, 2020974

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110
Total-P	99.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86275
Included Lab Sample IDs: 2020962, 2020965, 2020969, 2020970, 2020974, 2020977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86276
Included Lab Sample IDs: 2020962, 2020965, 2020969, 2020970, 2020974, 2020977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86280
Included Lab Sample IDs: 2020961, 2020964, 2020967, 2020968, 2020973, 2020976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86298
Included Lab Sample IDs: 2020962, 2020965, 2020969, 2020970, 2020974, 2020977

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

Reference Method: SM 5310 B-00
Run ID: A86299
Included Lab Sample IDs: 2020962, 2020965, 2020969, 2020970, 2020974, 2020977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	94.0	P/P	90 - 110
Organic Carbon	94.4	94.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A86312
Included Lab Sample IDs: 2020961, 2020964, 2020967, 2020968, 2020973, 2020976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	103	P/P	90 - 110
Sulfate	103	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A86318
Included Lab Sample IDs: 2021026, 2021027, 2021028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.5	99.4	P/P	95 - 105
Iron	102	101	P/P	95 - 105
Magnesium	102	100	P/P	95 - 105
Potassium	100	97.9	P/P	95 - 105
Sodium	97.6	97.3	P/P	95 - 105
Zinc	102	97.9	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A86387
Included Lab Sample IDs: 2020961, 2020964, 2020967, 2020968, 2020973, 2020976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A86387
Included Lab Sample IDs: 2020961, 2020964, 2020967, 2020968, 2020973, 2020976

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86465
Included Lab Sample IDs: 2021026, 2021027, 2021028

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86465
Included Lab Sample IDs: 2021026, 2021027, 2021028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	93.9	92.4	P/P	90 - 110
Cadmium	91.6	92.5	P/P	90 - 110
Chromium	92.2	91.4	P/P	90 - 110
Copper	93.8	91.9	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Nickel	93.2	91.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86535
Included Lab Sample IDs: 2021026, 2021027, 2021028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	95.2	96.6	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 180.1 Rev. 2.0	Turbidity						1.45	
EPA 200.7 Rev. 4.4	Calcium	104	102	108				1.79
	Iron	107	108	112	108			3.11
	Magnesium	106	110	107				3.58
	Potassium	104	104	107	102			2.96
	Sodium	100	99.4	102				2.17
	Zinc	103	105	103	102			0.545
EPA 200.8 Rev. 5.4	Arsenic	103	101	103	101			1.88
	Cadmium	99.8	103	103	103			0.697
	Chromium	99.0	98.9	99.5	97.6			1.96
	Copper	100	95.4	94.7	92.2			2.64
	Lead	104	104	100	99.2			1.20
	Nickel	100	97.7	96.5	94.1			2.46
	Silver	103	103	101	102			0.208
EPA 300.0 Rev. 2.1	Chloride	103	101	96.6			5.78	
	Sulfate	100	98.1	91.7			9.26	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	101				0.315
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	94.1	98.4				2.24
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101					0.818
EPA 365.1 Rev. 2.0	Total-P	100	96.6	98.2				1.47
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	96.8	97.3				0.515
SM 2120 B	Color (true)	99.7					2.52	
	Color (true)	98.6					4.61	
SM 2320 B-97	Total Alkalinity	102					0.119	
SM 2540 C-97	TDS						1.59	
SM 4500 F-C-97	Fluoride	100	101	100				0.484
SM 5310 B-00	Organic Carbon	95.5	94.6	95.6				0.724

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2021026, 2021027, 2021028
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2021026, 2021027, 2021028
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2020962, 2020965, 2020969, 2020970, 2020974, 2020977
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2020962, 2020965, 2020969, 2020970, 2020974, 2020977
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2020962, 2020965, 2020969, 2020970, 2020974, 2020977
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2020962, 2020965, 2020969, 2020970, 2020974, 2020977
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2020963, 2020966, 2020971, 2020972, 2020975, 2020978
SM 2120 B / E31780	True Color measured at 450 nm	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2020961, 2020964, 2020967, 2020968, 2020973, 2020976

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2020962, 2020965, 2020969, 2020970, 2020974, 2020977

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/30/2018			08/30/2018 16:04	Megan Treadwell	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
EPA 200.7 Rev. 4.4	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/06/2018 11:24	Betina Topolski	2021026
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/06/2018 11:31	Betina Topolski	2021027
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/06/2018 11:39	Betina Topolski	2021028
EPA 200.8 Rev. 5.4	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/12/2018 17:52	Robert K Palmer	2021026
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/12/2018 18:01	Robert K Palmer	2021027
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/12/2018 18:11	Robert K Palmer	2021028
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/14/2018 22:22	Robert K Palmer	2021026
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/14/2018 22:29	Robert K Palmer	2021027
	08/30/2018	09/04/2018 13:35	Elliott D. Healy	09/14/2018 22:35	Robert K Palmer	2021028
EPA 300.0 Rev. 2.1	08/30/2018			09/06/2018 16:27	Lipi Saha	2020961
	08/30/2018			09/06/2018 16:39	Lipi Saha	2020964
	08/30/2018			09/06/2018 16:51	Lipi Saha	2020967
	08/30/2018			09/06/2018 17:03	Lipi Saha	2020968
	08/30/2018			09/06/2018 17:15	Lipi Saha	2020973
	08/30/2018			09/06/2018 17:27	Lipi Saha	2020976
EPA 350.1 Rev. 2.0	08/30/2018			09/04/2018 12:25	Ping Hua	2020962
	08/30/2018			09/04/2018 12:30	Ping Hua	2020965
	08/30/2018			09/04/2018 12:37	Ping Hua	2020969
	08/30/2018			09/04/2018 12:42	Ping Hua	2020977
	08/30/2018			09/04/2018 13:24	Ping Hua	2020970
	08/30/2018			09/04/2018 13:25	Ping Hua	2020974
EPA 351.2 Rev. 2.0	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:37	Joseph Suarez	2020962
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:39	Joseph Suarez	2020965
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:40	Joseph Suarez	2020969
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:42	Joseph Suarez	2020970
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:44	Joseph Suarez	2020974
	08/30/2018	08/31/2018 15:00	Adrian Shelby	09/04/2018 14:45	Joseph Suarez	2020977
EPA 353.2 Rev. 2.0	08/30/2018			09/05/2018 15:05	Lauren Bottorf	2020962
	08/30/2018			09/05/2018 15:06	Lauren Bottorf	2020965
	08/30/2018			09/05/2018 15:08	Lauren Bottorf	2020969
	08/30/2018			09/05/2018 15:09	Lauren Bottorf	2020970
	08/30/2018			09/05/2018 15:10	Lauren Bottorf	2020974
	08/30/2018			09/05/2018 15:11	Lauren Bottorf	2020977
EPA 365.1 Rev. 2.0	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 08:46	Beverly Y. Sanders	2020965
	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 08:48	Beverly Y. Sanders	2020970
	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 08:49	Beverly Y. Sanders	2020977
	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 10:56	Beverly Y. Sanders	2020962
	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 11:04	Beverly Y. Sanders	2020969

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	08/30/2018	08/31/2018 12:15	Sima Feizi	09/04/2018 11:05	Beverly Y. Sanders	2020974
EPA 365.1 Rev. 2.0 dissolved	08/30/2018			08/30/2018 15:53	Julia Storbeck	2020963
	08/30/2018			08/30/2018 16:09	Julia Storbeck	2020972
	08/30/2018			08/30/2018 16:21	Julia Storbeck	2020966, 2020971
	08/30/2018			08/30/2018 16:22	Julia Storbeck	2020975
	08/30/2018			08/30/2018 16:25	Julia Storbeck	2020978
SM 2120 B	08/30/2018			08/30/2018 14:56	DeAsia Armster	2020961, 2020964
	08/30/2018			08/30/2018 14:57	DeAsia Armster	2020967
	08/30/2018			08/30/2018 14:59	DeAsia Armster	2020973, 2020976
	08/30/2018			08/30/2018 15:15	DeAsia Armster	2020968
SM 2320 B-97	08/30/2018			09/07/2018 03:09	Dale L. Simmons	2020961
	08/30/2018			09/07/2018 06:20	Dale L. Simmons	2020964
	08/30/2018			09/07/2018 06:31	Dale L. Simmons	2020967
	08/30/2018			09/07/2018 06:42	Dale L. Simmons	2020968
	08/30/2018			09/07/2018 06:53	Dale L. Simmons	2020973
	08/30/2018			09/07/2018 07:04	Dale L. Simmons	2020976
SM 2540 C-97	08/30/2018			08/31/2018 09:00	DeAsia Armster	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 2540 D-97	08/30/2018			08/31/2018 09:00	DeAsia Armster	2020961, 2020964, 2020967, 2020968, 2020973, 2020976
SM 4500 F-C-97	08/30/2018			09/07/2018 03:01	Dale L. Simmons	2020961
	08/30/2018			09/07/2018 06:20	Dale L. Simmons	2020964
	08/30/2018			09/07/2018 06:31	Dale L. Simmons	2020967
	08/30/2018			09/07/2018 06:42	Dale L. Simmons	2020968
	08/30/2018			09/07/2018 06:53	Dale L. Simmons	2020973
	08/30/2018			09/07/2018 07:04	Dale L. Simmons	2020976
SM 5310 B-00	08/30/2018			09/04/2018 19:36	Megan Treadwell	2020962
	08/30/2018			09/04/2018 20:05	Megan Treadwell	2020965
	08/30/2018			09/04/2018 20:21	Megan Treadwell	2020969
	08/30/2018			09/04/2018 21:04	Megan Treadwell	2020970
	08/30/2018			09/04/2018 21:18	Megan Treadwell	2020974
	08/30/2018			09/04/2018 21:33	Megan Treadwell	2020977