Chemical Analysis Report

WQAP-2018-04-20-03

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

Event Description: **Charlotte Gators**
Request ID: **RQ-2018-04-16-59**
Customer: **WQAP**
Project ID: **SMP**

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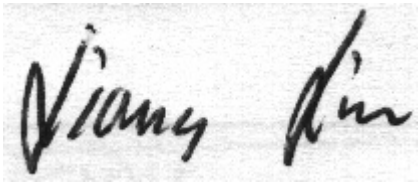
Date Certified: 01-JUN-2018 12:07



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: Alligator @ Burnt Store **Collection Date/Time: 04/19/2018 12:30**

Field ID: G2SD0016 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986473	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P343842	
	EPA 300.0 Rev. 2.1	Chloride	42		mg Cl/L	P344012	
		Sulfate	13		mg SO4/L	P344014	
	SM 2120 B	Color (true)	60		PCU	P343822	
	SM 2320 B-97	Total Alkalinity	144		mg CaCO3/L	P344517	
	SM 2540 C-97	TDS	257	A	mg/L	P344260	
	SM 2540 D-97	TSS	3	IA	mg/L	P344266	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P344456	
1986476	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P344183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P343890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343945	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P344041	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P344289	
1986479	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343833	

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: Alligator S@JonesLoopRd **Collection Date/Time: 04/19/2018 12:40**

Field ID: G2SD0033 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986474	EPA 180.1 Rev. 2.0	Turbidity	13	A	NTU	P343843	
	EPA 300.0 Rev. 2.1	Chloride	250		mg Cl/L	P344012	
		Sulfate	44		mg SO4/L	P344014	
	SM 2120 B	Color (true)	18		PCU	P343822	
	SM 2320 B-97	Total Alkalinity	224		mg CaCO3/L	P344517	
	SM 2540 C-97	TDS	772		mg/L	P344260	
	SM 2540 D-97	TSS	8	I	mg/L	P344266	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P344456	
1986477	EPA 350.1 Rev. 2.0	Ammonia-N	0.28		mg N/L	P344183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P343890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P343945	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P344041	
	SM 5310 B-00	Organic Carbon	7.6		mg C/L	P344289	
1986480	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P343834	

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: Alligator N@JonesLoopRd **Collection Date/Time: 04/19/2018 13:00**

Field ID: G2SD0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986475	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P343843	
	EPA 300.0 Rev. 2.1	Chloride	71		mg Cl/L	P344012	
		Sulfate	47		mg SO4/L	P344014	

Field ID: G2SD0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986475	SM 2120 B	Color (true)	23	A	PCU	P343823	
	SM 2320 B-97	Total Alkalinity	247		mg CaCO3/L	P344517	
	SM 2540 C-97	TDS	448		mg/L	P344260	
	SM 2540 D-97	TSS	4	I	mg/L	P344266	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P344456	
1986478	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P344183	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P343890	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P343946	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P344041	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P344289	
1986481	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.043		mg P/L	P343834	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/07/2018.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 05/02/2018.

Sample Location: ClevelandCemetaryDitch **Collection Date/Time: 04/19/2018 13:30**

Field ID: G3SD0076 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1986482	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P343843	
	SM 2320 B-97	Total Alkalinity	120		mg CaCO3/L	P344174	RPD
	SM 2540 D-97	TSS	4	I	mg/L	P344267	
	SM 4500 F-C-97	Fluoride	0.83		mg F/L	P344178	
1986483	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P344429	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P34990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P344030	
	EPA 365.1 Rev. 2.0	Total-P	0.34		mg P/L	P344039	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P344291	
1986484	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P343835	
1986497	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P344068	
	EPA 200.8 Rev. 5.4	Arsenic	2.25		ug/L	P344068	
		Cadmium	0.060	U	ug/L	P344068	
		Chromium	1.2	U	ug/L	P344068	
		Copper	0.60	U	ug/L	P344068	
		Lead	0.50	U	ug/L	P344068	
		Nickel	0.62	I	ug/L	P344068	
		Silver	0.030	U	ug/L	P344068	
		Zinc	3.0	U	ug/L	P344068	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343842

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343843

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344068

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344068

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
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344012

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344014

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344429

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P34990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343945

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344030

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344039

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343833

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343835

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

Reference Method: SM 2120 B
Batch ID: P343822

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P343823

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P344174

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

Reference Method: SM 2320 B-97
Batch ID: P344517

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

Reference Method: SM 2540 C-97
Batch ID: P344260

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344266

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344267

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344289

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

Reference Method: SM 5310 B-00
Batch ID: P344291

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: P344068

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	99.5		P	85 - 115
Chromium	97.3		P	85 - 115
Copper	94.7		P	85 - 115
Lead	95.5		P	85 - 115
Nickel	97.4		P	85 - 115
Silver	98.3		P	85 - 115
Zinc	97.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344012

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.1		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344429

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P34990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343945

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344030

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344039

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343833

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P344174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P344517

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

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344289

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

Reference Method: SM 5310 B-00
Batch ID: P344291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986497	Iron	104	105	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986497	Arsenic	104	105	P/P	70 - 130
1986497	Cadmium	84.3	86.9	P/P	70 - 130
1986497	Chromium	80.4	80.9	P/P	70 - 130
1986497	Copper	96.2	96.4	P/P	70 - 130
1986497	Lead	101	102	P/P	70 - 130
1986497	Nickel	102	103	P/P	70 - 130
1986497	Silver	86.7	87.4	P/P	70 - 130
1986497	Zinc	87.2	88.1	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986330	Chloride	95.8	95.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986330	Sulfate	94.9	93.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986367	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P34990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986624	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986331	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986478	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986368	NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986624	Total-P	93.8	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986503	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986236	O-Phosphate-P	99.5	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986480	O-Phosphate-P	97.3	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986230	O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986386	Fluoride	94.7	96.2	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986604	Fluoride	94.7	95.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986322	Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P344291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1986430	Organic Carbon	93.6	94.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986364	Turbidity	1.87	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986474	Turbidity	0.749	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P344068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986497	Iron	0.934	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P344068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986497	Arsenic	1.10	Spike	P	0 - 20
1986497	Cadmium	3.05	Spike	P	0 - 20
1986497	Chromium	0.641	Spike	P	0 - 20
1986497	Copper	0.273	Spike	P	0 - 20
1986497	Lead	0.986	Spike	P	0 - 20
1986497	Nickel	0.443	Spike	P	0 - 20
1986497	Silver	0.829	Spike	P	0 - 20
1986497	Zinc	1.11	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986330	Chloride	0.110	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986330	Sulfate	0.738	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	Ammonia-N	0.478	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986367	Ammonia-N	0.945	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P34990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986624	Kjeldahl Nitrogen	0.0316	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986331	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986478	NO2NO3-N	0.763	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986368	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986624	Total-P	0.676	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986503	Total-P	0.173	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986236	O-Phosphate-P	0.706	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986480	O-Phosphate-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986230	O-Phosphate-P	1.50	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986329	Color (true)	11.2	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986475	Color (true)	4.48	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P344174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986386	Total Alkalinity	1.95	Sample	F	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P344517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986604	Total Alkalinity	0.603	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986473	TDS	7.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986386	Fluoride	0.953	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P344456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986604	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986322	Organic Carbon	0.376	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P344291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1986430	Organic Carbon	0.318	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A83378
Included Lab Sample IDs: 1986473, 1986474, 1986475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.0	P/P	90 - 115
Color (true)	99.0	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83379
Included Lab Sample IDs: 1986479, 1986480, 1986481, 1986484

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.0	P/P	90 - 110
O-Phosphate-P	98.1	97.9	P/P	90 - 110
O-Phosphate-P	98.9	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83380
Included Lab Sample IDs: 1986473, 1986474, 1986475, 1986482

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83415
Included Lab Sample IDs: 1986473, 1986474, 1986475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Chloride	104	106	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110
Sulfate	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83419
Included Lab Sample IDs: 1986476, 1986477, 1986478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83453
Included Lab Sample IDs: 1986483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83459
Included Lab Sample IDs: 1986476, 1986477, 1986478

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83467
Included Lab Sample IDs: 1986483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.7	98.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83489
Included Lab Sample IDs: 1986497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.6	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83492
Included Lab Sample IDs: 1986482

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.9	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83492
Included Lab Sample IDs: 1986482

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83494
Included Lab Sample IDs: 1986476, 1986477, 1986478

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83513
Included Lab Sample IDs: 1986476, 1986478

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

Reference Method: SM 5310 B-00
Run ID: A83539
Included Lab Sample IDs: 1986476, 1986477, 1986478, 1986483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.3	P/P	90 - 110
Organic Carbon	98.1	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83540
Included Lab Sample IDs: 1986477

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83540
Included Lab Sample IDs: 1986477

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83547
Included Lab Sample IDs: 1986483

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A83584
Included Lab Sample IDs: 1986497

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	102	P/P	90 - 110
Cadmium	96.7	97.0	P/P	90 - 110
Chromium	94.2	93.6	P/P	90 - 110
Copper	98.0	99.0	P/P	90 - 110
Lead	97.0	97.0	P/P	90 - 110
Nickel	98.6	99.2	P/P	90 - 110
Silver	97.6	97.7	P/P	90 - 110
Zinc	98.5	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83587
Included Lab Sample IDs: 1986483

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

Reference Method: SM 4500 F-C-97
Run ID: A83593
Included Lab Sample IDs: 1986473, 1986474, 1986475

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

Reference Method: SM 2320 B-97
Run ID: A83608
Included Lab Sample IDs: 1986473, 1986474, 1986475

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.7	P/P	90 - 110
Total Alkalinity	99.7	103	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					1.87	
	Turbidity					0.749	
EPA 200.7 Rev. 4.4	Iron	103	104	105			0.934
EPA 200.8 Rev. 5.4	Arsenic	100	104	105			1.10
	Cadmium	99.5	84.3	86.9			3.05
	Chromium	97.3	80.4	80.9			0.641
	Copper	94.7	96.2	96.4			0.273
	Lead	95.5	101	102			0.986
	Nickel	97.4	102	103			0.443
	Silver	98.3	86.7	87.4			0.829
	Zinc	97.8	87.2	88.1			1.11
EPA 300.0 Rev. 2.1	Chloride	101	95.8	95.6			0.110
	Sulfate	99.1	94.9	93.7			0.738
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103			0.478
	Ammonia-N	101	104	105			0.945
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102	103			1.09
	Kjeldahl Nitrogen	98.6	103	103			0.0316
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	104			1.45
	NO2NO3-N	103	102	103			0.763
	NO2NO3-N	98.5	100	99.0			1.01
EPA 365.1 Rev. 2.0	Total-P	105	93.8	94.6			0.676
	Total-P	103	101	101			0.173
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	99.5	98.8			0.706
	O-Phosphate-P	101	97.3	98.6			1.19
	O-Phosphate-P	99.6	99.0	100			1.50
SM 2120 B	Color (true)					11.2	
	Color (true)					4.48	
SM 2320 B-97	Total Alkalinity	101				1.95	
	Total Alkalinity	102				0.603	
SM 2540 C-97	TDS					7.00	
SM 4500 F-C-97	Fluoride	95.3	94.7	96.2			0.953
	Fluoride	95.2	94.7	95.2			0.479
SM 5310 B-00	Organic Carbon	96.1	101				0.376
	Organic Carbon	96.4	93.6	94.0			0.318

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1986473, 1986474, 1986475, 1986482
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1986497
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1986497
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1986473, 1986474, 1986475
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1986473, 1986474, 1986475
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1986476, 1986477, 1986478, 1986483
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1986476, 1986477, 1986478, 1986483
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1986476, 1986477, 1986478, 1986483

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1986476, 1986477, 1986478, 1986483
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1986479, 1986480, 1986481, 1986484
SM 2120 B / E31780	True Color measured at 450 nm	1986473, 1986474, 1986475
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1986473, 1986474, 1986475, 1986482
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1986473, 1986474, 1986475
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1986473, 1986474, 1986475, 1986482
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1986473, 1986474, 1986475, 1986482
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1986476, 1986477, 1986478, 1986483

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	04/20/2018			04/20/2018 16:58	Tanya Welborn	1986473, 1986474, 1986475, 1986482
EPA 200.7 Rev. 4.4	04/20/2018	04/25/2018 17:50	Elliott D. Healy	04/26/2018 16:35	Betina Topolski	1986497
EPA 200.8 Rev. 5.4	04/20/2018	04/25/2018 17:50	Elliott D. Healy	05/01/2018 19:34	Nadine Brooks	1986497
	04/20/2018	04/25/2018 17:50	Elliott D. Healy	05/02/2018 00:20	Nadine Brooks	1986497
EPA 300.0 Rev. 2.1	04/20/2018			04/24/2018 22:47	Lipi Saha	1986473
	04/20/2018			04/24/2018 22:59	Lipi Saha	1986474
	04/20/2018			04/24/2018 23:35	Lipi Saha	1986475
EPA 350.1 Rev. 2.0	04/20/2018			04/25/2018 11:41	Ping Hua	1986476
	04/20/2018			04/25/2018 11:44	Ping Hua	1986478
	04/20/2018			04/25/2018 13:16	Ping Hua	1986477
	04/20/2018			04/30/2018 13:20	Ping Hua	1986483
EPA 351.2 Rev. 2.0	04/20/2018	04/23/2018 16:00	Adrian Shelby	04/25/2018 14:02	Tanya Welborn	1986476
	04/20/2018	04/23/2018 16:00	Adrian Shelby	04/25/2018 14:04	Tanya Welborn	1986477
	04/20/2018	04/23/2018 16:00	Adrian Shelby	04/25/2018 14:05	Tanya Welborn	1986478
	04/20/2018	04/25/2018 10:20	Adrian Shelby	04/25/2018 16:37	Tanya Welborn	1986483
EPA 353.2 Rev. 2.0	04/20/2018			04/24/2018 12:29	Lauren Bottorf	1986476
	04/20/2018			04/24/2018 12:30	Lauren Bottorf	1986477
	04/20/2018			04/24/2018 12:37	Lauren Bottorf	1986478
	04/20/2018			04/25/2018 12:09	Lauren Bottorf	1986483
EPA 365.1 Rev. 2.0	04/20/2018	04/25/2018 13:20	Sima Feizi	04/27/2018 13:11	Beverly Y. Sanders	1986476
	04/20/2018	04/25/2018 13:20	Sima Feizi	04/27/2018 13:12	Beverly Y. Sanders	1986478
	04/20/2018	04/25/2018 13:20	Sima Feizi	04/30/2018 10:32	Beverly Y. Sanders	1986477
	04/20/2018	04/25/2018 13:20	Sima Feizi	04/30/2018 14:31	Beverly Y. Sanders	1986483
EPA 365.1 Rev. 2.0 dissolved	04/20/2018			04/20/2018 15:07	Megan Treadwell	1986480
	04/20/2018			04/20/2018 15:39	Megan Treadwell	1986479
	04/20/2018			04/20/2018 15:40	Megan Treadwell	1986481
	04/20/2018			04/20/2018 15:52	Megan Treadwell	1986484
SM 2120 B	04/20/2018			04/20/2018 15:18	Tanya Welborn	1986473
	04/20/2018			04/20/2018 15:19	Tanya Welborn	1986474
	04/20/2018			04/20/2018 15:23	Tanya Welborn	1986475
SM 2320 B-97	04/20/2018			04/27/2018 02:45	Dale L. Simmons	1986482
	04/20/2018			05/02/2018 19:35	Dale L. Simmons	1986473
	04/20/2018			05/02/2018 19:44	Dale L. Simmons	1986475
	04/20/2018			05/02/2018 21:23	Dale L. Simmons	1986474
SM 2540 C-97	04/20/2018			04/24/2018 15:21	Yijie Li	1986473, 1986474, 1986475
SM 2540 D-97	04/20/2018			04/24/2018 15:21	Yijie Li	1986473, 1986474, 1986475, 1986482
SM 4500 F-C-97	04/20/2018			04/26/2018 23:03	Dale L. Simmons	1986482
	04/20/2018			05/02/2018 01:56	Dale L. Simmons	1986473
	04/20/2018			05/02/2018 02:08	Dale L. Simmons	1986475
	04/20/2018			05/02/2018 04:16	Dale L. Simmons	1986474

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	04/20/2018			04/27/2018 22:51	Julia Storbeck	1986476
	04/20/2018			04/27/2018 23:06	Julia Storbeck	1986477
	04/20/2018			04/27/2018 23:20	Julia Storbeck	1986478
	04/20/2018			04/28/2018 11:02	Julia Storbeck	1986483