Chemical Analysis Report

NW-DIST-2018-03-07-01

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

Event Description: **NW RUN**
Request ID: **RQ-2018-03-05-57**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 18-APR-2018 16:46

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: Little Pine Barren Creek Above CR 99 **Collection Date/Time: 03/06/2018 10:05**

Field ID: G4NW0420 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972457	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P341132	
	EPA 300.0 Rev. 2.1	Chloride	6.4		mg Cl/L	P341420	
		Sulfate	0.65		mg SO4/L	P341425	
	SM 2120 B	Color (true)	32		PCU	P341125	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	20	I	mg/L	P341590	
	SM 2540 D-97	TSS	3	I	mg/L	P341607	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341524	
1972462	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P341493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P341313	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P341326	
1972467	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341140	

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: Mitchell Creek upstream of HWY 29 **Collection Date/Time: 03/06/2018 10:30**

Field ID: G4NW0116 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972454	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P341132	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P341420	
		Sulfate	0.80		mg SO4/L	P341425	
	SM 2120 B	Color (true)	33		PCU	P341125	
	SM 2320 B-97	Total Alkalinity	1.0	I	mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	15	U	mg/L	P341590	
	SM 2540 D-97	TSS	4	I	mg/L	P341607	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341524	
1972455	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P341493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P341313	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P341326	
1972456	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341140	
1972505	EPA 200.7 Rev. 4.4	Calcium	0.52		mg/L	P341196	
		Iron	700		ug/L	P341196	
		Magnesium	0.53		mg/L	P341196	
		Potassium	0.30	U	mg/L	P341196	
		Sodium	1.9	I	mg/L	P341196	
		Zinc	5.0	U	ug/L	P341196	
	EPA 200.8 Rev. 5.4	Arsenic	0.21		ug/L	P341196	
		Cadmium	0.020	U	ug/L	P341196	
		Chromium	1.9		ug/L	P341196	

Field ID: G4NW0116 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972505	EPA 200.8 Rev. 5.4	Copper	0.22	I	ug/L	P341196	
		Lead	0.13	I	ug/L	P341196	
		Nickel	0.59	I	ug/L	P341196	
		Silver	0.010	U	ug/L	P341196	

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: Wiggins Branch below HWY 29 **Collection Date/Time: 03/06/2018 11:05**

Field ID: G4NW0163 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972458	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P341132	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P341420	
		Sulfate	1.4		mg SO4/L	P341425	
	SM 2120 B	Color (true)	27	A	PCU	P341129	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	23	I	mg/L	P341590	
	SM 2540 D-97	TSS	9	I	mg/L	P341607	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P341524	
1972463	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P341493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.076		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P341313	
	SM 5310 B-00	Organic Carbon	6.8		mg C/L	P341326	
1972468	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P341140	

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: Big Escambia River downstream of Fannie Rd **Collection Date/Time: 03/06/2018 11:30**

Field ID: G4NW0421 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972459	EPA 180.1 Rev. 2.0	Turbidity	7.3	A	NTU	P341133	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P341420	
		Sulfate	1.0		mg SO4/L	P341425	
	SM 2120 B	Color (true)	42	A	PCU	P341126	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	20	I	mg/L	P341591	
	SM 2540 D-97	TSS	7	I	mg/L	P341608	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341524	
1972464	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P341493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P341314	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P341326	
1972469	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341140	

Field ID: G4NW0421 Matrix: W-SURF-FRH

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

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: McCostill Mill Creek West Ebeneezer Rd **Collection Date/Time: 03/06/2018 12:00**

Field ID: G4NW0320 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972460	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P341133	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P341420	
		Sulfate	0.64		mg SO4/L	P341425	
	SM 2120 B	Color (true)	6.2		PCU	P341126	
	SM 2320 B-97	Total Alkalinity	0.66	I	mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	23	I	mg/L	P341591	
	SM 2540 D-97	TSS	3	I	mg/L	P341608	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341524	
1972465	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P341493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.1		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P341314	
	SM 5310 B-00	Organic Carbon	0.99	I	mg C/L	P341326	
1972470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341140	

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: Moore Creek above Chamuckla Springs Road **Collection Date/Time: 03/06/2018 12:35**

Field ID: G4NW0355 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972461	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P341133	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P341420	
		Sulfate	0.67		mg SO4/L	P341425	
	SM 2120 B	Color (true)	12		PCU	P341126	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P341521	
	SM 2540 C-97	TDS	25		mg/L	P341591	
	SM 2540 D-97	TSS	5	I	mg/L	P341608	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341524	
1972466	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P341494	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P341357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.3		mg N/L	P341284	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P341314	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P341326	
1972471	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341140	

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: P341132

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341133

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341196

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: P341196

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: P341420

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341425

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341493

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341494

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341284

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341313

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341314

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341140

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

Reference Method: SM 2120 B
Batch ID: P341125

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P341126

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P341129

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P341521

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

Reference Method: SM 2540 C-97
Batch ID: P341590

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P341591

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341607

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341608

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P341524

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P341326

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: P341196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	110		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	107		P	85 - 115
Sodium	101		P	85 - 115
Zinc	103		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	102		P	85 - 115
Copper	101		P	85 - 115
Lead	110		P	85 - 115
Nickel	101		P	85 - 115
Silver	105		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341420

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341425

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341284

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341313

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341314

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341140

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

Reference Method: SM 2320 B-97
Batch ID: P341521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P341524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P341326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972378	Calcium	106		P	80 - 120
1972378	Iron	110		P	80 - 120
1972378	Magnesium	106		P	80 - 120
1972378	Potassium	105		P	80 - 120
1972378	Sodium	102		P	80 - 120
1972378	Zinc	102		P	80 - 120
1972688	Calcium	102		P	80 - 120
1972688	Iron	109	107	P/P	80 - 120
1972688	Magnesium	101		P	80 - 120
1972688	Potassium	107	104	P/P	80 - 120
1972688	Sodium	98.5		P	80 - 120
1972688	Zinc	99.4	97.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972378	Arsenic	105		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972378	Cadmium	103		P	80 - 120
1972378	Chromium	103		P	80 - 120
1972378	Copper	99.9		P	80 - 120
1972378	Lead	112		P	80 - 120
1972378	Nickel	99.3		P	80 - 120
1972378	Silver	105		P	80 - 120
1972688	Arsenic	103	101	P/P	80 - 120
1972688	Cadmium	107	106	P/P	80 - 120
1972688	Chromium	103	100	P/P	80 - 120
1972688	Copper	97.5	96.3	P/P	80 - 120
1972688	Lead	112	110	P/P	80 - 120
1972688	Nickel	98.6	97.0	P/P	80 - 120
1972688	Silver	107	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972433	Chloride	98.9		P	90 - 110
1972454	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972433	Sulfate	99.0		P	90 - 110
1972454	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972284	Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972466	Ammonia-N	95.7	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972465	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972434	NO2NO3-N	103	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972462	Total-P	98.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972519	Total-P	98.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972438	O-Phosphate-P	94.0	94.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P341524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972840	Fluoride	96.4	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P341326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972416	Organic Carbon	113		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972412	Turbidity	2.40	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972459	Turbidity	0.137	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972688	Calcium	0.775	Spike	P	0 - 20
1972688	Iron	1.12	Spike	P	0 - 20
1972688	Magnesium	1.62	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972688	Potassium	1.78	Spike	P	0 - 20
1972688	Sodium	0.602	Spike	P	0 - 20
1972688	Zinc	1.41	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972688	Arsenic	2.07	Spike	P	0 - 20
1972688	Cadmium	1.30	Spike	P	0 - 20
1972688	Chromium	2.94	Spike	P	0 - 20
1972688	Copper	1.18	Spike	P	0 - 20
1972688	Lead	1.73	Spike	P	0 - 20
1972688	Nickel	1.70	Spike	P	0 - 20
1972688	Silver	1.95	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972433	Chloride	0.0511	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972433	Sulfate	0.500	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972284	Ammonia-N	0.869	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972466	Ammonia-N	2.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972465	Kjeldahl Nitrogen	3.82	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972434	NO2NO3-N	2.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972462	Total-P	2.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972519	Total-P	0.0240	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972438	O-Phosphate-P	0.489	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972430	Color (true)	1.62	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972459	Color (true)	3.27	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P341129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972458	Color (true)	4.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P341521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972840	Total Alkalinity	0.318	Sample	P	0 - 4.8

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P341590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972412	TDS	6.43	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P341591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972512	TDS	7.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P341524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972840	Fluoride	0.477	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P341326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972416	Organic Carbon	0.235	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: A82485
Included Lab Sample IDs: 1972454, 1972457, 1972458, 1972459, 1972460, 1972461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115
Color (true)	98.3	100	P/P	85 - 115
Color (true)	98.4	98.3	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82487
Included Lab Sample IDs: 1972454, 1972457, 1972458, 1972459, 1972460, 1972461

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82489
Included Lab Sample IDs: 1972456, 1972467, 1972468, 1972469, 1972470, 1972471

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82509
Included Lab Sample IDs: 1972454, 1972457, 1972458, 1972459, 1972460, 1972461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.7	95.7	P/P	90 - 110
Chloride	97.3	96.7	P/P	90 - 110
Sulfate	97.2	97.2	P/P	90 - 110
Sulfate	98.6	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82523
Included Lab Sample IDs: 1972455, 1972462, 1972463, 1972464, 1972465, 1972466

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: SM 5310 B-00
Run ID: A82537
Included Lab Sample IDs: 1972455, 1972462, 1972463, 1972464, 1972465, 1972466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.9	99.0	P/P	90 - 110
Organic Carbon	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82550
Included Lab Sample IDs: 1972455, 1972462, 1972463, 1972464, 1972465, 1972466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A82562
Included Lab Sample IDs: 1972505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	100	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	101	100	P/P	90 - 110
Potassium	98.4	98.5	P/P	90 - 110
Sodium	98.4	97.5	P/P	90 - 110
Zinc	103	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A82584
Included Lab Sample IDs: 1972455, 1972462, 1972463, 1972464, 1972465, 1972466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A82600
Included Lab Sample IDs: 1972455, 1972462, 1972463, 1972464, 1972465, 1972466

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110
Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A82604
Included Lab Sample IDs: 1972454, 1972457, 1972458, 1972459, 1972460, 1972461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A82604
Included Lab Sample IDs: 1972454, 1972457, 1972458, 1972459, 1972460, 1972461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A82618
Included Lab Sample IDs: 1972505

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	97.2	P/P	90 - 110
Cadmium	98.5	96.0	P/P	90 - 110
Chromium	97.2	96.9	P/P	90 - 110
Copper	99.5	94.8	P/P	90 - 110
Lead	106	103	P/P	90 - 110
Nickel	100	95.6	P/P	90 - 110
Silver	101	98.6	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					2.40	
	Turbidity					0.137	
EPA 200.7 Rev. 4.4	Calcium	107	106	102			0.775

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.7 Rev. 4.4	Iron	110	110	109	107			1.12
	Magnesium	106	106	101				1.62
	Potassium	107	105	107	104			1.78
	Sodium	101	102	98.5				0.602
	Zinc	103	102	99.4	97.6			1.41
EPA 200.8 Rev. 5.4	Arsenic	103	105	103	101			2.07
	Cadmium	103	103	107	106			1.30
	Chromium	102	103	103	100			2.94
	Copper	101	99.9	97.5	96.3			1.18
	Lead	110	112	112	110			1.73
	Nickel	101	99.3	98.6	97.0			1.70
	Silver	105	105	107	105			1.95
EPA 300.0 Rev. 2.1	Chloride	101	98.9	102			0.0511	
	Sulfate	104	99.0	103			0.500	
EPA 350.1 Rev. 2.0	Ammonia-N	95.5	98.9	100				0.869
	Ammonia-N	97.6	95.7	98.6				2.54
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102	106				3.82
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103	100				2.41
EPA 365.1 Rev. 2.0	Total-P	102	98.6	101				2.71
	Total-P	102	98.4	98.4				0.0240
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	94.0	94.5				0.489
SM 2120 B	Color (true)						1.62	
	Color (true)						3.27	
	Color (true)						4.18	
SM 2320 B-97	Total Alkalinity	99.2					0.318	
SM 2540 C-97	TDS						6.43	
	TDS						7.06	
SM 4500 F-C-97	Fluoride	95.7	96.4	97.0				0.477
SM 5310 B-00	Organic Carbon	98.2	113					0.235

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1972505
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1972505
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1972455, 1972462, 1972463, 1972464, 1972465, 1972466
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1972455, 1972462, 1972463, 1972464, 1972465, 1972466
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1972455, 1972462, 1972463, 1972464, 1972465, 1972466
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1972455, 1972462, 1972463, 1972464, 1972465, 1972466
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1972456, 1972467, 1972468, 1972469, 1972470, 1972471
SM 2120 B / E31780	True Color measured at 450 nm	1972454, 1972457, 1972458, 1972459, 1972460, 1972461

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1972455, 1972462, 1972463, 1972464, 1972465, 1972466

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	03/07/2018			03/07/2018 15:18	DeAsia Armster	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
EPA 200.7 Rev. 4.4	03/07/2018	03/08/2018 15:55	Elliott D. Healy	03/12/2018 18:52	Betina Topolski	1972505
EPA 200.8 Rev. 5.4	03/07/2018	03/08/2018 15:55	Elliott D. Healy	03/14/2018 18:35	Nadine Brooks	1972505
EPA 300.0 Rev. 2.1	03/07/2018			03/08/2018 22:46	Julia Storbeck	1972454
	03/07/2018			03/08/2018 23:57	Julia Storbeck	1972457
	03/07/2018			03/09/2018 00:33	Julia Storbeck	1972458
	03/07/2018			03/09/2018 00:45	Julia Storbeck	1972459
	03/07/2018			03/09/2018 00:57	Julia Storbeck	1972460
	03/07/2018			03/09/2018 01:09	Julia Storbeck	1972461
EPA 350.1 Rev. 2.0	03/07/2018			03/12/2018 17:09	Ping Hua	1972455
	03/07/2018			03/12/2018 17:10	Ping Hua	1972462
	03/07/2018			03/12/2018 17:12	Ping Hua	1972463
	03/07/2018			03/12/2018 17:13	Ping Hua	1972464
	03/07/2018			03/12/2018 17:15	Ping Hua	1972465
	03/07/2018			03/12/2018 17:25	Ping Hua	1972466
EPA 351.2 Rev. 2.0	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:20	Joseph Suarez	1972455
	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:22	Joseph Suarez	1972462
	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:23	Joseph Suarez	1972463
	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:24	Joseph Suarez	1972464
	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:26	Joseph Suarez	1972465
	03/07/2018	03/12/2018 11:30	Adrian Shelby	03/14/2018 10:33	Joseph Suarez	1972466
EPA 353.2 Rev. 2.0	03/07/2018			03/09/2018 10:13	Beverly Y. Sanders	1972455
	03/07/2018			03/09/2018 10:17	Beverly Y. Sanders	1972464
	03/07/2018			03/09/2018 11:52	Beverly Y. Sanders	1972462
	03/07/2018			03/09/2018 11:54	Beverly Y. Sanders	1972463
	03/07/2018			03/09/2018 11:55	Beverly Y. Sanders	1972465
	03/07/2018			03/09/2018 11:56	Beverly Y. Sanders	1972466
EPA 365.1 Rev. 2.0	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:31	Beverly Y. Sanders	1972455
	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:32	Beverly Y. Sanders	1972462
	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:33	Beverly Y. Sanders	1972463
	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:35	Beverly Y. Sanders	1972464
	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:36	Beverly Y. Sanders	1972465
	03/07/2018	03/09/2018 14:10	Sima Feizi	03/12/2018 12:37	Beverly Y. Sanders	1972466
EPA 365.1 Rev. 2.0 dissolved	03/07/2018			03/07/2018 17:19	Megan Treadwell	1972468
	03/07/2018			03/07/2018 17:20	Megan Treadwell	1972469
	03/07/2018			03/07/2018 17:21	Megan Treadwell	1972470
	03/07/2018			03/07/2018 17:22	Megan Treadwell	1972471
	03/07/2018			03/07/2018 17:50	Megan Treadwell	1972467
	03/07/2018			03/07/2018 17:54	Megan Treadwell	1972456

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	03/07/2018			03/07/2018 15:23	Tanya Welborn	1972454
	03/07/2018			03/07/2018 15:24	Tanya Welborn	1972457
	03/07/2018			03/07/2018 15:28	Tanya Welborn	1972459
	03/07/2018			03/07/2018 15:29	Tanya Welborn	1972460
	03/07/2018			03/07/2018 15:30	Tanya Welborn	1972461
	03/07/2018			03/07/2018 16:01	Tanya Welborn	1972458
SM 2320 B-97	03/07/2018			03/13/2018 23:49	Dale L. Simmons	1972454
	03/07/2018			03/14/2018 00:01	Dale L. Simmons	1972457
	03/07/2018			03/14/2018 00:11	Dale L. Simmons	1972458
	03/07/2018			03/14/2018 00:23	Dale L. Simmons	1972459
	03/07/2018			03/14/2018 00:34	Dale L. Simmons	1972460
	03/07/2018			03/14/2018 00:46	Dale L. Simmons	1972461
SM 2540 C-97	03/07/2018			03/10/2018 23:15	Yijie Li	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 2540 D-97	03/07/2018			03/10/2018 23:15	Yijie Li	1972454, 1972457, 1972458, 1972459, 1972460, 1972461
SM 4500 F-C-97	03/07/2018			03/13/2018 23:49	Dale L. Simmons	1972454
	03/07/2018			03/14/2018 00:01	Dale L. Simmons	1972457
	03/07/2018			03/14/2018 00:11	Dale L. Simmons	1972458
	03/07/2018			03/14/2018 00:23	Dale L. Simmons	1972459
	03/07/2018			03/14/2018 00:34	Dale L. Simmons	1972460
	03/07/2018			03/14/2018 00:46	Dale L. Simmons	1972461
SM 5310 B-00	03/07/2018			03/09/2018 05:17	Megan Treadwell	1972455
	03/07/2018			03/09/2018 05:32	Megan Treadwell	1972462
	03/07/2018			03/09/2018 05:51	Megan Treadwell	1972463
	03/07/2018			03/09/2018 06:39	Megan Treadwell	1972464
	03/07/2018			03/09/2018 06:52	Megan Treadwell	1972465
	03/07/2018			03/09/2018 07:06	Megan Treadwell	1972466