Chemical Analysis Report

SO-DIST-2020-08-20-01

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

Event Description: **Canals**
Request ID: **RQ-2020-08-17-47**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Certified by: Colin Wright, Program Administrator

Date Certified: 10-SEP-2020 10:48

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 by the Florida Department of Health Environmental Laboratory Certification Program 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-19 @ Us 27 **Collection Date/Time: 08/19/2020 09:40**

Field ID: G3SD0087 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191451	EPA 180.1 Rev. 2.0	Turbidity	9.4		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P386378	
		Sulfate	22		mg SO4/L	P386381	
	SM 2120 B-2011	Color (true)	270		PCU	P386353	
	SM 2320 B-2011	Total Alkalinity	251		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	477		mg/L	P386743	
	SM 2540 D-2011	TSS	7	I	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.20		mg F/L	P386458	
2191454	EPA 350.1 Rev. 2.0	Ammonia-N	5.1		mg N/L	P386444	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	7.7		mg N/L	P386517	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P386474	
	EPA 365.1 Rev. 2.0	Total-P	1.3		mg P/L	P386398	
	SM 5310 B-2011	Organic Carbon	32		mg C/L	P386548	
2191457	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.87		mg P/L	P386364	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Nine Mile Canal @ Sr 80 **Collection Date/Time: 08/19/2020 11:25**

Field ID: G3SD0088 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191460	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P386939	
		Sulfate	22		mg SO4/L	P386941	
	SM 2120 B-2011	Color (true)	250		PCU	P386353	
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	332		mg/L	P386743	
	SM 2540 D-2011	TSS	2	U	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.19		mg F/L	P386458	
2191461	EPA 350.1 Rev. 2.0	Ammonia-N	0.066		mg N/L	P386443	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P386685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P386474	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P386398	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P386548	
2191462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P386364	
2191502	EPA 200.7 Rev. 4.4	Barium	26.4		ug/L	P386472	
		Calcium	56.0		mg/L	P386472	
		Iron	390		ug/L	P386472	
		Magnesium	8.34		mg/L	P386472	
		Potassium	7.9		mg/L	P386472	
		Sodium	29.1		mg/L	P386472	
		Zinc	5.0	U	ug/L	P386472	
	EPA 200.8 Rev. 5.4	Aluminum	41		ug/L	P386472	
		Antimony	0.12	I	ug/L	P386472	
		Arsenic	1.56		ug/L	P386472	
		Beryllium	0.019	I	ug/L	P386472	
		Boron**	58.6		ug/L	P386472	
		Cadmium	0.020	U	ug/L	P386472	
		Chromium	0.48	I	ug/L	P386472	
		Copper	0.42	I	ug/L	P386472	
		Lead	0.20	U	ug/L	P386472	
		Nickel	0.60	I	ug/L	P386472	
		Selenium	0.20	U	ug/L	P386472	
		Silver	0.010	U	ug/L	P386472	
		Thallium	0.10	U	ug/L	P386472	
	SM 2340B	Hardness	174		mg/L	P386472	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Hicpochee In Canal @ Riverside Dr **Collection Date/Time: 08/19/2020 10:20**

Field ID: G3SD0102 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191452	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	40		mg Cl/L	P386378	
		Sulfate	21		mg SO4/L	P386381	
	SM 2120 B-2011	Color (true)	350		PCU	P386353	
	SM 2320 B-2011	Total Alkalinity	70		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	260		mg/L	P386743	
	SM 2540 D-2011	TSS	2	U	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P386458	
2191455	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P386438	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P386517	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P386474	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P386398	
	SM 5310 B-2011	Organic Carbon	31		mg C/L	P386548	
2191458	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P386364	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: C-19 Canal **Collection Date/Time: 08/19/2020 11:00**

Field ID: G3SD0162 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2191453	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P386345	
	EPA 300.0 Rev. 2.1	Chloride	38		mg Cl/L	P386378	
		Sulfate	22		mg SO4/L	P386381	
	SM 2120 B-2011	Color (true)	360		PCU	P386353	
	SM 2320 B-2011	Total Alkalinity	61		mg CaCO3/L	P386454	
	SM 2540 C-2011	TDS	252	A	mg/L	P386743	
	SM 2540 D-2011	TSS	3	I A	mg/L	P386576	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P386458	
2191456	EPA 350.1 Rev. 2.0	Ammonia-N	0.20		mg N/L	P386438	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P386685	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.051		mg N/L	P386474	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P386398	
	SM 5310 B-2011	Organic Carbon	32		mg C/L	P386548	
2191459	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P386364	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386345

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386472

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P386472

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386438

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386444

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386517

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386398

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386364

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P386353

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P386454

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

Reference Method: SM 2540 C-2011
Batch ID: P386743

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386576

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P386548

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: P386472

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	101		P	85 - 115
Iron	101		P	85 - 115
Magnesium	100		P	85 - 115
Potassium	101		P	85 - 115
Sodium	100		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386472

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.1		P	85 - 115
Antimony	92.1		P	85 - 115
Arsenic	103		P	85 - 115
Beryllium	91.6		P	85 - 115
Boron	105		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	108		P	85 - 115
Copper	98.1		P	85 - 115
Lead	110		P	85 - 115
Nickel	100		P	85 - 115
Selenium	97.4		P	85 - 115
Silver	109		P	85 - 115
Thallium	109		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.1		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386438

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386517

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386398

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386364

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

Reference Method: SM 2120 B-2011
Batch ID: P386353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P386454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P386548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191623	Barium	105		P	80 - 120
2191623	Calcium	104		P	80 - 120
2191623	Iron	102		P	80 - 120
2191623	Magnesium	102		P	80 - 120
2191623	Potassium	99.0		P	80 - 120
2191623	Sodium	101		P	80 - 120
2191623	Zinc	105		P	80 - 120
2191701	Barium	106	107	P/P	80 - 120
2191701	Calcium	102		P	80 - 120
2191701	Iron	104	107	P/P	80 - 120
2191701	Magnesium	104		P	80 - 120
2191701	Potassium	103		P	80 - 120
2191701	Sodium	101		P	80 - 120
2191701	Zinc	106	107	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191623	Aluminum	99.1		P	80 - 120
2191623	Antimony	104		P	80 - 120
2191623	Arsenic	104		P	80 - 120
2191623	Beryllium	93.2		P	80 - 120
2191623	Boron	104		P	80 - 120
2191623	Cadmium	104		P	80 - 120
2191623	Chromium	111		P	80 - 120
2191623	Copper	99.2		P	80 - 120
2191623	Lead	111		P	80 - 120
2191623	Nickel	100		P	80 - 120
2191623	Selenium	91.8		P	80 - 120
2191623	Silver	109		P	80 - 120
2191623	Thallium	111		P	80 - 120
2191701	Aluminum	96.0	96.6	P/P	80 - 120
2191701	Antimony	102	97.4	P/P	80 - 120
2191701	Arsenic	103	105	P/P	80 - 120
2191701	Beryllium	92.7	95.4	P/P	80 - 120
2191701	Boron	103	103	P/P	80 - 120
2191701	Cadmium	102	103	P/P	80 - 120
2191701	Chromium	107	110	P/P	80 - 120
2191701	Copper	99.0	102	P/P	80 - 120
2191701	Lead	110	111	P/P	80 - 120
2191701	Nickel	99.2	101	P/P	80 - 120
2191701	Selenium	95.2	97.6	P/P	80 - 120
2191701	Silver	109	108	P/P	80 - 120
2191701	Thallium	110	113	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191306	Chloride	99.2		P	90 - 110
2191366	Chloride	101		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191306	Sulfate	98.6		P	90 - 110
2191366	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191533	Chloride	96.8		P	90 - 110
2191617	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191533	Sulfate	96.7		P	90 - 110
2191617	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191434	Ammonia-N	95.2	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191592	Ammonia-N	96.8	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191694	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191431	Kjeldahl Nitrogen	103	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2192144	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191535	NO2NO3-N	97.8		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191436	O-Phosphate-P	98.7	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191305	Fluoride	101	101	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P386548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2191730	Organic Carbon	99.8	99.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P386345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191371	Turbidity	4.28	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P386472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191701	Barium	0.667	Spike	P	0 - 20
2191701	Calcium	0.274	Spike	P	0 - 20
2191701	Iron	2.37	Spike	P	0 - 20
2191701	Magnesium	2.46	Spike	P	0 - 20
2191701	Potassium	0.113	Spike	P	0 - 20
2191701	Sodium	0.330	Spike	P	0 - 20
2191701	Zinc	1.42	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P386472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191701	Aluminum	0.648	Spike	P	0 - 20
2191701	Antimony	4.51	Spike	P	0 - 20
2191701	Arsenic	1.91	Spike	P	0 - 20
2191701	Beryllium	2.79	Spike	P	0 - 20
2191701	Boron	0.0982	Spike	P	0 - 20
2191701	Cadmium	0.759	Spike	P	0 - 20
2191701	Chromium	2.67	Spike	P	0 - 20
2191701	Copper	2.53	Spike	P	0 - 20
2191701	Lead	1.22	Spike	P	0 - 20
2191701	Nickel	1.40	Spike	P	0 - 20
2191701	Selenium	2.50	Spike	P	0 - 20
2191701	Silver	1.14	Spike	P	0 - 20
2191701	Thallium	2.33	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191306	Chloride	0.329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191306	Sulfate	0.0518	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191533	Chloride	0.202	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191533	Sulfate	0.0611	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191434	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191592	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191694	Ammonia-N	0.783	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191431	Kjeldahl Nitrogen	3.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2192144	Kjeldahl Nitrogen	2.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P386474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191535	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P386398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191454	Total-P	0.566	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P386364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191436	O-Phosphate-P	0.771	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Total Alkalinity	0.422	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191453	TDS	0.398	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P386458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191305	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P386548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2191730	Organic Carbon	0.0811	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A100543
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A100567
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 2120 B-2011
Run ID: A100568
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.6	P/P	90 - 115
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A100570
Included Lab Sample IDs: 2191457, 2191458, 2191459, 2191462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A100600
Included Lab Sample IDs: 2191454, 2191455, 2191456, 2191461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	99.2	98.1	P/P	90 - 110
Ammonia-N	99.3	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A100606
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	97.5	P/P	90 - 110
Total Alkalinity	99.9	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A100606
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A100606
Included Lab Sample IDs: 2191451, 2191452, 2191453, 2191460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A100616
Included Lab Sample IDs: 2191454, 2191455, 2191456, 2191461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.9	P/P	90 - 110
Total-P	98.9	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A100618
Included Lab Sample IDs: 2191454, 2191455, 2191456, 2191461

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A100648
Included Lab Sample IDs: 2191502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	90 - 110
Calcium	99.8	99.1	P/P	90 - 110
Iron	100	99.6	P/P	90 - 110
Magnesium	99.6	98.9	P/P	90 - 110
Potassium	98.2	98.4	P/P	90 - 110
Sodium	98.1	98.8	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A100654
Included Lab Sample IDs: 2191454, 2191455, 2191456, 2191461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100656
Included Lab Sample IDs: 2191455

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100658
Included Lab Sample IDs: 2191454

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.0	95.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A100715
Included Lab Sample IDs: 2191502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.1	99.6	P/P	90 - 110
Arsenic	100	101	P/P	90 - 110
Boron	101	100	P/P	90 - 110
Cadmium	100	102	P/P	90 - 110
Chromium	103	105	P/P	90 - 110
Copper	96.1	97.4	P/P	90 - 110
Lead	104	106	P/P	90 - 110
Nickel	97.2	98.2	P/P	90 - 110
Selenium	97.9	98.9	P/P	90 - 110
Silver	106	108	P/P	90 - 110
Thallium	102	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A100716
Included Lab Sample IDs: 2191502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	91.4	102	P/P	90 - 110
Beryllium	95.4	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A100731
Included Lab Sample IDs: 2191456, 2191461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.2	102	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						4.28	
EPA 200.7 Rev. 4.4	Barium	103	105	106	107			0.667
	Calcium	101	104	102				0.274
	Iron	101	102	104	107			2.37
	Magnesium	100	102	104				2.46
	Potassium	101	99.0	103				0.113
	Sodium	100	101	101				0.330
	Zinc	104	105	106	107			1.42
EPA 200.8 Rev. 5.4	Aluminum	98.1	96.0	96.6	99.1			0.648
	Antimony	92.1	102	97.4	104			4.51
	Arsenic	103	103	105	104			1.91
	Beryllium	91.6	92.7	95.4	93.2			2.79
	Boron	105	103	103	104			0.0982
	Cadmium	102	102	103	104			0.759
	Chromium	108	107	110	111			2.67
	Copper	98.1	99.0	102	99.2			2.53
	Lead	110	110	111	111			1.22
	Nickel	100	99.2	101	100			1.40
	Selenium	97.4	95.2	97.6	91.8			2.50
	Silver	109	109	108	109			1.14
	Thallium	109	110	113	111			2.33
EPA 300.0 Rev. 2.1	Chloride	100	99.2	101			0.329	
	Chloride	98.9	96.8	100			0.202	
	Sulfate	100	98.6	101			0.0518	
	Sulfate	98.1	96.7	100			0.0611	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	95.2	96.8				1.34
	Ammonia-N	94.2	96.8	99.4				2.14
	Ammonia-N	95.4	102	103				0.783
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	103	98.3				3.11
	Kjeldahl Nitrogen	97.8	101	105				2.50
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.8					0.0
EPA 365.1 Rev. 2.0	Total-P	105						0.566
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.7	99.5				0.771
SM 2120 B-2011	Color (true)	99.3						
SM 2320 B-2011	Total Alkalinity	101					0.422	
SM 2540 C-2011	TDS						0.398	
SM 4500 F-C-2011	Fluoride	99.0	101	101				0.0
SM 5310 B-2011	Organic Carbon	100	99.8	99.7				0.0811

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2191451, 2191452, 2191453, 2191460
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2191502
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2191502
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2191451, 2191452, 2191453, 2191460
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2191451, 2191452, 2191453, 2191460
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2191454, 2191455, 2191456, 2191461
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2191454, 2191455, 2191456, 2191461
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2191454, 2191455, 2191456, 2191461
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2191454, 2191455, 2191456, 2191461

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2191457, 2191458, 2191459, 2191462
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2191451, 2191452, 2191453, 2191460
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2191451, 2191452, 2191453, 2191460
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2191502
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2191451, 2191452, 2191453, 2191460
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2191451, 2191452, 2191453, 2191460
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2191451, 2191452, 2191453, 2191460
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2191454, 2191455, 2191456, 2191461

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	08/20/2020			08/20/2020 15:09	Yen Ta	2191451, 2191452, 2191453, 2191460
EPA 200.7 Rev. 4.4	08/20/2020	08/24/2020 14:20	Elliott D. Healy	08/25/2020 17:55	Betina Topolski	2191502
EPA 200.8 Rev. 5.4	08/20/2020	08/24/2020 14:20	Elliott D. Healy	08/28/2020 21:47	Alexander Thompson	2191502
	08/20/2020	08/24/2020 14:20	Elliott D. Healy	08/29/2020 22:58	Alexander Thompson	2191502
EPA 300.0 Rev. 2.1	08/20/2020			08/21/2020 07:45	Julia Storbeck	2191451
	08/20/2020			08/21/2020 07:57	Julia Storbeck	2191452
	08/20/2020			08/21/2020 08:09	Julia Storbeck	2191453
	08/20/2020			08/21/2020 18:29	Julia Storbeck	2191460
EPA 350.1 Rev. 2.0	08/20/2020			08/23/2020 17:17	Ping Hua	2191456
	08/20/2020			08/23/2020 17:18	Ping Hua	2191455
	08/20/2020			08/23/2020 19:23	Ping Hua	2191461
	08/20/2020			08/23/2020 19:57	Ping Hua	2191454
EPA 351.2 Rev. 2.0	08/20/2020	08/25/2020 09:50	Sima Feizi	08/26/2020 12:14	Virginia P. Brown	2191455
	08/20/2020	08/25/2020 09:50	Sima Feizi	08/26/2020 14:02	Virginia P. Brown	2191454
	08/20/2020	08/28/2020 12:10	David Boose	08/31/2020 10:42	Virginia P. Brown	2191456
	08/20/2020	08/28/2020 12:10	David Boose	08/31/2020 10:43	Virginia P. Brown	2191461
EPA 353.2 Rev. 2.0	08/20/2020			08/24/2020 10:20	Beverly Y. Sanders	2191454
	08/20/2020			08/24/2020 10:21	Beverly Y. Sanders	2191455
	08/20/2020			08/24/2020 10:22	Beverly Y. Sanders	2191456
	08/20/2020			08/24/2020 10:23	Beverly Y. Sanders	2191461
EPA 365.1 Rev. 2.0	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:14	Benjamin T. Nordmann	2191455
	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:15	Benjamin T. Nordmann	2191456
	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:16	Benjamin T. Nordmann	2191461
	08/20/2020	08/21/2020 12:26	Yen Ta	08/24/2020 09:52	Benjamin T. Nordmann	2191454
EPA 365.1 Rev. 2.0 dissolved	08/20/2020			08/20/2020 16:10	Blanca Fach	2191457
	08/20/2020			08/20/2020 16:11	Blanca Fach	2191458
	08/20/2020			08/20/2020 16:12	Blanca Fach	2191459
	08/20/2020			08/20/2020 16:46	Blanca Fach	2191462
SM 2120 B-2011	08/20/2020			08/20/2020 16:28	Benjamin T. Nordmann	2191451
	08/20/2020			08/20/2020 16:29	Benjamin T. Nordmann	2191452, 2191453
	08/20/2020			08/20/2020 16:32	Benjamin T. Nordmann	2191460
SM 2320 B-2011	08/20/2020			08/21/2020 21:30	Dale L. Simmons	2191451
	08/20/2020			08/21/2020 21:43	Dale L. Simmons	2191452
	08/20/2020			08/21/2020 21:56	Dale L. Simmons	2191453
	08/20/2020			08/21/2020 22:44	Dale L. Simmons	2191460
SM 2340B	08/20/2020			08/25/2020 17:55	Betina Topolski	2191502
SM 2540 C-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191451, 2191452, 2191453, 2191460
SM 2540 D-2011	08/20/2020			08/21/2020 19:30	Madeline Gruver	2191451, 2191452, 2191453, 2191460
SM 4500 F-C-2011	08/20/2020			08/21/2020 21:30	Dale L. Simmons	2191451
	08/20/2020			08/21/2020 21:43	Dale L. Simmons	2191452

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	08/20/2020			08/21/2020 21:56	Dale L. Simmons	2191453
	08/20/2020			08/21/2020 22:44	Dale L. Simmons	2191460
SM 5310 B-2011	08/20/2020			08/25/2020 22:35	Lauren Lees	2191454
	08/20/2020			08/25/2020 22:47	Lauren Lees	2191455
	08/20/2020			08/25/2020 23:01	Lauren Lees	2191456
	08/20/2020			08/25/2020 23:13	Lauren Lees	2191461