

Chemical Analysis Report

SE-DIST-2020-07-01-01

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

Event Description: **SMP- Lake O Tribs**
Request ID: **RQ-2020-06-29-33**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Drew Liddick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-JUL-2020 11:16

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: L-63N canal @ SR 70

Collection Date/Time: 06/30/2020 11:10

Field ID: G1SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2179975	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P383941	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P384101	
		Sulfate	17		mg SO4/L	P384105	
	SM 2120 B-2011	Color (true)	410		PCU	P383953	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P384133	
	SM 2540 C-2011	TDS	250		mg/L	P384598	
	SM 2540 D-2011	TSS	4	I	mg/L	P384395	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P384140	
2179977	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P384028	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P383993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P384069	
	EPA 365.1 Rev. 2.0	Total-P	0.51		mg P/L	P383997	
	SM 5310 B-2011	Organic Carbon	36		mg C/L	P384109	
2179979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.44		mg P/L	P383947	

Ref. Method and Comment:

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: Popash Slough @ 67th Dr.

Collection Date/Time: 06/30/2020 12:00

Field ID: G1SE0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2179976	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P383941	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P384101	
		Sulfate	21		mg SO4/L	P384105	
	SM 2120 B-2011	Color (true)	620		PCU	P383953	
	SM 2320 B-2011	Total Alkalinity	64		mg CaCO3/L	P384133	
	SM 2540 C-2011	TDS	408	A	mg/L	P384598	
	SM 2540 D-2011	TSS	4	IA	mg/L	P384395	
2179978	SM 4500 F-C-2011	Fluoride	0.098	I	mg F/L	P384140	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P384028	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.0		mg N/L	P383993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384069	
	EPA 365.1 Rev. 2.0	Total-P	1.1		mg P/L	P383997	
2179980	SM 5310 B-2011	Organic Carbon	41		mg C/L	P384109	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	1.0		mg P/L	P383947	

Ref. Method and Comment:

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: L-63 @ SE 59th Blvd.

Collection Date/Time: 06/30/2020 12:25

Field ID: G1SE0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2179972	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P383941	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P384101	
		Sulfate	18		mg SO4/L	P384105	
		Color (true)	410		PCU	P383953	
	SM 2320 B-2011	Total Alkalinity	48		mg CaCO3/L	P384133	
	SM 2540 C-2011	TDS	252		mg/L	P384597	
	SM 2540 D-2011	TSS	3	I	mg/L	P384394	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P384140	
2179973	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P384028	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P383993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P384069	
	EPA 365.1 Rev. 2.0	Total-P	0.53		mg P/L	P383997	
	SM 5310 B-2011	Organic Carbon	36		mg C/L	P384109	
2179974	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.46		mg P/L	P383947	
2179989	EPA 200.7 Rev. 4.4	Barium	18.0		ug/L	P384078	
		Calcium	25.4		mg/L	P384078	
		Iron	690		ug/L	P384078	
		Magnesium	6.53		mg/L	P384078	
		Potassium	9.3		mg/L	P384078	
		Sodium	27.6		mg/L	P384078	
		Zinc	5.7	I	ug/L	P384078	
	EPA 200.8 Rev. 5.4	Aluminum	190		ug/L	P384078	
		Antimony	0.061	I	ug/L	P384078	
		Arsenic	1.26		ug/L	P384078	
		Boron**	42.2		ug/L	P384078	
		Cadmium	0.020	U	ug/L	P384078	
		Chromium	0.82	I	ug/L	P384078	
		Copper	1.57		ug/L	P384078	
		Lead	0.20	U	ug/L	P384078	
		Nickel	0.59	I	ug/L	P384078	
		Selenium	0.21	I	ug/L	P384078	
		Silver	0.010	U	ug/L	P384078	
		Thallium	0.10	U	ug/L	P384078	
	SM 2340B	Hardness	90.3		mg/L	P384078	

Ref. Method and Comment:

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: L-63 canal @ SE 86th Blvd.

Collection Date/Time: 06/30/2020 12:40

Field ID: G1SE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2179966	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P383941	
	EPA 300.0 Rev. 2.1	Chloride	47		mg Cl/L	P384101	
		Sulfate	18		mg SO4/L	P384105	
	SM 2120 B-2011	Color (true)	410		PCU	P383952	
	SM 2320 B-2011	Total Alkalinity	48		mg CaCO3/L	P384133	
	SM 2540 C-2011	TDS	241	A	mg/L	P384597	
	SM 2540 D-2011	TSS	4	IA	mg/L	P384394	
	SM 4500 F-C-2011	Fluoride	0.10		mg F/L	P384140	
2179968	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P384027	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P384188	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P384069	
	EPA 365.1 Rev. 2.0	Total-P	0.55		mg P/L	P383986	
	SM 5310 B-2011	Organic Carbon	37		mg C/L	P384109	
2179970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.45		mg P/L	P383948	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: L-65 upstream of S-153

Collection Date/Time: 06/30/2020 13:15

Field ID: G1SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2179967	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P383941	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P384101	
		Sulfate	30		mg SO4/L	P384105	
		Color (true)	240		PCU	P383952	
	SM 2320 B-2011	Total Alkalinity	117		mg CaCO3/L	P384133	
	SM 2540 C-2011	TDS	436		mg/L	P384597	
	SM 2540 D-2011	TSS	7	I	mg/L	P384394	
	SM 4500 F-C-2011	Fluoride	0.25		mg F/L	P384140	
2179969	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P384028	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P383993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P384069	
	EPA 365.1 Rev. 2.0	Total-P	0.58		mg P/L	P383997	
	SM 5310 B-2011	Organic Carbon	31		mg C/L	P384109	
2179971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P383948	

Ref. Method and Comment:

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: P383941

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P384078

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: P384078

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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: P384101

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384105

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384027

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: P384028

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384188

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384069

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383997

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383947

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383948

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

Reference Method: SM 2120 B-2011
Batch ID: P383952

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P383953

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P384133

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P384597

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P384598

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384394

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P384395

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P384140

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P384109

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: P384078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	100		P	85 - 115
Sodium	101		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P384078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.5		P	85 - 115
Antimony	95.0		P	85 - 115
Arsenic	94.9		P	85 - 115
Boron	98.1		P	85 - 115
Cadmium	95.4		P	85 - 115
Chromium	99.0		P	85 - 115
Copper	95.4		P	85 - 115
Lead	94.5		P	85 - 115
Nickel	93.4		P	85 - 115
Selenium	94.9		P	85 - 115
Silver	99.0		P	85 - 115
Thallium	96.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384105

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384027

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384028

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383993

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384188

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384069

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383997

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383947

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: P383948

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

Reference Method: SM 2120 B-2011
Batch ID: P383952

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

Reference Method: SM 2120 B-2011
Batch ID: P383953

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P384133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.7		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P384140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P384109

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: P384078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180579	Barium	107	107	P/P	80 - 120
2180579	Calcium	105		P	80 - 120
2180579	Iron	106	105	P/P	80 - 120
2180579	Magnesium	108	106	P/P	80 - 120
2180579	Potassium	105	103	P/P	80 - 120
2180579	Sodium	100	98.6	P/P	80 - 120
2180579	Zinc	107	107	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P384078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180579	Aluminum	89.1	89.1	P/P	80 - 120
2180579	Antimony	93.3	94.3	P/P	80 - 120
2180579	Arsenic	92.5	92.3	P/P	80 - 120
2180579	Boron	99.3	101	P/P	80 - 120
2180579	Cadmium	96.0	95.8	P/P	80 - 120
2180579	Chromium	97.9	97.9	P/P	80 - 120
2180579	Copper	93.9	93.3	P/P	80 - 120
2180579	Lead	94.4	94.9	P/P	80 - 120
2180579	Nickel	91.9	97.2	P/P	80 - 120
2180579	Selenium	91.1	90.2	P/P	80 - 120
2180579	Silver	97.4	98.3	P/P	80 - 120
2180579	Thallium	99.5	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179729	Chloride	99.5		P	90 - 110
2179915	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179729	Sulfate	98.1		P	90 - 110
2179915	Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179948	Ammonia-N	98.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180025	Ammonia-N	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180027	Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179948	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179818	Total-P	96.4	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180063	O-Phosphate-P	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2179923	O-Phosphate-P	96.4	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P384140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180125	Fluoride	101	102	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P384109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2180024	Organic Carbon	101	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P383941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179870	Turbidity	4.11	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P384078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180579	Barium	0.0271	Spike	P	0 - 20
2180579	Calcium	0.694	Spike	P	0 - 20
2180579	Iron	0.736	Spike	P	0 - 20
2180579	Magnesium	1.49	Spike	P	0 - 20
2180579	Potassium	2.08	Spike	P	0 - 20
2180579	Sodium	1.30	Spike	P	0 - 20
2180579	Zinc	0.237	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P384078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180579	Aluminum	0.0230	Spike	P	0 - 20
2180579	Antimony	1.07	Spike	P	0 - 20
2180579	Arsenic	0.204	Spike	P	0 - 20
2180579	Boron	1.73	Spike	P	0 - 20
2180579	Cadmium	0.220	Spike	P	0 - 20
2180579	Chromium	0.0241	Spike	P	0 - 20
2180579	Copper	0.635	Spike	P	0 - 20
2180579	Lead	0.547	Spike	P	0 - 20
2180579	Nickel	5.68	Spike	P	0 - 20
2180579	Selenium	0.945	Spike	P	0 - 20
2180579	Silver	0.952	Spike	P	0 - 20
2180579	Thallium	1.42	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179915	Chloride	0.381	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P384105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179915	Sulfate	0.0801	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179948	Ammonia-N	2.77	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P384028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180025	Ammonia-N	0.561	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P383993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180027	Kjeldahl Nitrogen	1.88	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P384188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180166	Kjeldahl Nitrogen	13.4	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P384069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179948	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179818	Total-P	0.382	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P383997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179969	Total-P	1.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180063	O-Phosphate-P	1.10	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P383948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179923	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179947	Color (true)	0.423	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P383953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180017	Color (true)	0.0740	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P384133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180125	Total Alkalinity	1.19	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P384597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179966	TDS	3.32	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P384598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2179976	TDS	3.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P384140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180125	Fluoride	0.467	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P384109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2180024	Organic Carbon	1.06	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A99631

Included Lab Sample IDs: 2179970, 2179971, 2179974, 2179979, 2179980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A99632

Included Lab Sample IDs: 2179966, 2179967, 2179972, 2179975, 2179976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A99633

Included Lab Sample IDs: 2179966, 2179967, 2179972, 2179975, 2179976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A99659

Included Lab Sample IDs: 2179966, 2179967, 2179972, 2179975, 2179976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	99.7	99.9	P/P	90 - 110
Sulfate	99.9	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A99664

Included Lab Sample IDs: 2179968, 2179969, 2179973, 2179977, 2179978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	99.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A99684

Included Lab Sample IDs: 2179968, 2179969, 2179973, 2179977, 2179978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99685

Included Lab Sample IDs: 2179969, 2179973, 2179977, 2179978

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A99701

Included Lab Sample IDs: 2179968, 2179969, 2179973, 2179977, 2179978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A99709

Included Lab Sample IDs: 2179966, 2179967, 2179972, 2179975, 2179976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.1	94.7	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A99709

Included Lab Sample IDs: 2179966, 2179967, 2179972, 2179975, 2179976

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99717

Included Lab Sample IDs: 2179968, 2179969, 2179973, 2179977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.8	98.7	P/P	90 - 110
Total-P	98.7	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A99718

Included Lab Sample IDs: 2179978

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A99759

Included Lab Sample IDs: 2179989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	103	P/P	95 - 105
Calcium	104	105	P/P	95 - 105
Iron	103	103	P/P	95 - 105
Magnesium	103	103	P/P	95 - 105
Potassium	99.2	99.3	P/P	95 - 105
Sodium	100	101	P/P	95 - 105
Zinc	101	104	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A99770

Included Lab Sample IDs: 2179968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.3	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99818

Included Lab Sample IDs: 2179989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	91.8	91.6	P/P	90 - 110
Antimony	91.6	93.6	P/P	90 - 110
Arsenic	93.0	92.1	P/P	90 - 110
Cadmium	92.6	94.4	P/P	90 - 110
Chromium	93.6	95.0	P/P	90 - 110
Copper	93.3	91.6	P/P	90 - 110
Lead	93.0	94.5	P/P	90 - 110
Nickel	93.0	91.3	P/P	90 - 110
Selenium	93.8	95.7	P/P	90 - 110
Silver	94.3	95.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A99899

Included Lab Sample IDs: 2179989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	95.8	97.7	P/P	90 - 110
Thallium	90.1	92.4	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					4.11	
EPA 200.7 Rev. 4.4	Barium	104	107	107			0.0271
	Calcium	104	105				0.694
	Iron	106	106	105			0.736
	Magnesium	107	108	106			1.49
	Potassium	100	105	103			2.08
	Sodium	101	100	98.6			1.30
	Zinc	104	107	107			0.237
EPA 200.8 Rev. 5.4	Aluminum	93.5	89.1	89.1			0.0230
	Antimony	95.0	93.3	94.3			1.07
	Arsenic	94.9	92.5	92.3			0.204
	Boron	98.1	99.3	101			1.73
	Cadmium	95.4	96.0	95.8			0.220
	Chromium	99.0	97.9	97.9			0.0241
	Copper	95.4	93.9	93.3			0.635
	Lead	94.5	94.4	94.9			0.547
	Nickel	93.4	91.9	97.2			5.68
	Selenium	94.9	91.1	90.2			0.945
	Silver	99.0	97.4	98.3			0.952
	Thallium	96.0	99.5	101			1.42
EPA 300.0 Rev. 2.1	Chloride	99.9	98.0	99.5		0.381	
	Sulfate	98.5	95.0	98.1		0.0801	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.2	101			2.77
	Ammonia-N	100	104	103			0.561
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	108			1.88
	Kjeldahl Nitrogen	101					13.4
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	96.6	96.4	96.0			0.382
	Total-P	98.1					1.32
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.5	101			1.10
	O-Phosphate-P	104	96.4	97.9			1.29
SM 2120 B-2011	Color (true)	100				0.423	
	Color (true)	100				0.0740	
SM 2320 B-2011	Total Alkalinity	95.7				1.19	
SM 2540 C-2011	TDS					3.32	
	TDS					3.19	
SM 4500 F-C-2011	Fluoride	100	101	102			0.467
SM 5310 B-2011	Organic Carbon	100	101	103			1.06

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2179966, 2179967, 2179972, 2179975, 2179976
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2179989
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2179989
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2179966, 2179967, 2179972, 2179975, 2179976
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2179966, 2179967, 2179972, 2179975, 2179976
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2179968, 2179969, 2179973, 2179977, 2179978

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2179968, 2179969, 2179973, 2179977, 2179978
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2179968, 2179969, 2179973, 2179977, 2179978
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2179968, 2179969, 2179973, 2179977, 2179978
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2179970, 2179971, 2179974, 2179979, 2179980
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2179966, 2179967, 2179972, 2179975, 2179976
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2179966, 2179967, 2179972, 2179975, 2179976
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2179989
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2179966, 2179967, 2179972, 2179975, 2179976
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2179966, 2179967, 2179972, 2179975, 2179976
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2179966, 2179967, 2179972, 2179975, 2179976
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2179968, 2179969, 2179973, 2179977, 2179978

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	07/01/2020			07/01/2020 15:56	Yen Ta	2179966, 2179967, 2179972, 2179975, 2179976
EPA 200.7 Rev. 4.4	07/01/2020	07/06/2020 13:00	Elliott D. Healy	07/08/2020 16:42	Betina Topolski	2179989
EPA 200.8 Rev. 5.4	07/01/2020	07/06/2020 13:00	Elliott D. Healy	07/10/2020 15:51	Justin Cutchin	2179989
	07/01/2020	07/06/2020 13:00	Elliott D. Healy	07/15/2020 16:41	Alexander Thompson	2179989
EPA 300.0 Rev. 2.1	07/01/2020			07/03/2020 00:29	Jhamieka S. Greenwood	2179966
	07/01/2020			07/03/2020 01:05	Jhamieka S. Greenwood	2179967
	07/01/2020			07/03/2020 01:17	Jhamieka S. Greenwood	2179972
	07/01/2020			07/03/2020 01:29	Jhamieka S. Greenwood	2179975
	07/01/2020			07/03/2020 01:41	Jhamieka S. Greenwood	2179976
EPA 350.1 Rev. 2.0	07/01/2020			07/04/2020 13:17	Ping Hua	2179968
	07/01/2020			07/04/2020 13:26	Ping Hua	2179969
	07/01/2020			07/04/2020 13:27	Ping Hua	2179973
	07/01/2020			07/04/2020 13:29	Ping Hua	2179977
	07/01/2020			07/04/2020 13:36	Ping Hua	2179978
EPA 351.2 Rev. 2.0	07/01/2020	07/02/2020 09:50	Sima Feizi	07/06/2020 11:15	Jhamieka S. Greenwood	2179969
	07/01/2020	07/02/2020 09:50	Sima Feizi	07/06/2020 11:17	Jhamieka S. Greenwood	2179973
	07/01/2020	07/02/2020 09:50	Sima Feizi	07/06/2020 11:19	Jhamieka S. Greenwood	2179977
	07/01/2020	07/02/2020 09:50	Sima Feizi	07/06/2020 11:20	Jhamieka S. Greenwood	2179978
	07/01/2020	07/08/2020 11:05	Elliott Rodriguez	07/09/2020 09:38	Jhamieka S. Greenwood	2179968
EPA 353.2 Rev. 2.0	07/01/2020			07/06/2020 09:31	Beverly Y. Sanders	2179968
	07/01/2020			07/06/2020 09:33	Beverly Y. Sanders	2179969
	07/01/2020			07/06/2020 09:34	Beverly Y. Sanders	2179973
	07/01/2020			07/06/2020 09:35	Beverly Y. Sanders	2179977
	07/01/2020			07/06/2020 09:36	Beverly Y. Sanders	2179978
EPA 365.1 Rev. 2.0	07/01/2020	07/02/2020 11:42	Yen Ta	07/07/2020 12:29	Benjamin T. Nordmann	2179968
	07/01/2020	07/02/2020 11:42	Yen Ta	07/07/2020 12:32	Benjamin T. Nordmann	2179969
	07/01/2020	07/02/2020 11:42	Yen Ta	07/07/2020 12:37	Benjamin T. Nordmann	2179973
	07/01/2020	07/02/2020 11:42	Yen Ta	07/07/2020 12:38	Benjamin T. Nordmann	2179977
	07/01/2020	07/02/2020 11:42	Yen Ta	07/07/2020 14:09	Benjamin T. Nordmann	2179978
EPA 365.1 Rev. 2.0 dissolved	07/01/2020			07/01/2020 15:51	Jhamieka S. Greenwood	2179974
	07/01/2020			07/01/2020 15:53	Jhamieka S. Greenwood	2179979
	07/01/2020			07/01/2020 15:54	Jhamieka S. Greenwood	2179980
	07/01/2020			07/01/2020 15:56	Jhamieka S. Greenwood	2179970
	07/01/2020			07/01/2020 15:58	Jhamieka S. Greenwood	2179971
SM 2120 B-2011	07/01/2020			07/01/2020 17:37	Benjamin T. Nordmann	2179966
	07/01/2020			07/01/2020 17:38	Benjamin T. Nordmann	2179967
	07/01/2020			07/01/2020 17:39	Benjamin T. Nordmann	2179972, 2179975
	07/01/2020			07/01/2020 17:40	Benjamin T. Nordmann	2179976
SM 2320 B-2011	07/01/2020			07/06/2020 23:21	Dale L. Simmons	2179966

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	07/01/2020			07/06/2020 23:33	Dale L. Simmons	2179967
	07/01/2020			07/06/2020 23:45	Dale L. Simmons	2179972
	07/01/2020			07/06/2020 23:58	Dale L. Simmons	2179975
	07/01/2020			07/07/2020 00:10	Dale L. Simmons	2179976
SM 2340B	07/01/2020			07/08/2020 16:42	Betina Topolski	2179989
SM 2540 C-2011	07/01/2020			07/06/2020 14:02	Yijie Li	2179966, 2179967, 2179972, 2179975, 2179976
SM 2540 D-2011	07/01/2020			07/06/2020 14:02	Yijie Li	2179966, 2179967, 2179972, 2179975, 2179976
SM 4500 F-C-2011	07/01/2020			07/06/2020 23:21	Dale L. Simmons	2179966
	07/01/2020			07/06/2020 23:33	Dale L. Simmons	2179967
	07/01/2020			07/06/2020 23:45	Dale L. Simmons	2179972
	07/01/2020			07/06/2020 23:58	Dale L. Simmons	2179975
	07/01/2020			07/07/2020 00:10	Dale L. Simmons	2179976
SM 5310 B-2011	07/01/2020			07/06/2020 16:27	Lauren Lees	2179968
	07/01/2020			07/06/2020 16:39	Lauren Lees	2179969
	07/01/2020			07/06/2020 16:51	Lauren Lees	2179973
	07/01/2020			07/06/2020 17:03	Lauren Lees	2179977
	07/01/2020			07/06/2020 17:15	Lauren Lees	2179978