Chemical Analysis Report

TLH-ROC-2019-06-04-01

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

Event Description: **Run 13**
Request ID: **RQ-2019-05-27-44**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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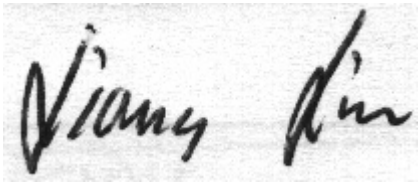
Date Certified: 24-JUN-2019 13:36



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: EAST BAY **Collection Date/Time: 06/04/2019 11:10**

Field ID: G2TLHR0027 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091316	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P365011	
	EPA 300.0	Bromide	8.5		mg Br/L	P365319	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P365796	
	SM 2540 D-97	TSS	8	I	mg/L	P365629	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P365670	
2091317	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P365469	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P365287	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P365284	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P365345	
2091318	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365153	

Ref. Method and Comment:
EPA 300.0: Bromide: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: APALACHICOLA BAY CENTER **Collection Date/Time: 06/04/2019 11:50**

Field ID: G2TLHR0026 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091310	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P365011	
	EPA 300.0	Bromide	11		mg Br/L	P365319	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P365796	
	SM 2540 D-97	TSS	8	I	mg/L	P365629	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P365670	
2091312	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365353	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P365329	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P365287	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P365284	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P365345	
2091314	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365153	
2091333	EPA 200.7 Rev. 4.4	Iron	350		ug/L	P365226	
		Manganese	77.7		ug/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	246		ug/L	P365226	
		Antimony	0.068	I	ug/L	P365226	
		Arsenic	0.63		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.50	I	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Ref. Method and Comment:
EPA 300.0: Bromide: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample. The result was confirmed on 06/14/2019.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: The result was confirmed on 06/18/2019.

Sample Location: APALACHICOLA BAY CENTER **Collection Date/Time: 06/04/2019 11:55**

Field ID: G2TLHR0026_DUP Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091311	EPA 180.1 Rev. 2.0	Turbidity	8.5		NTU	P365011	
	EPA 300.0	Bromide	8.1		mg Br/L	P365319	
	SM 2320 B-97	Total Alkalinity	62		mg CaCO3/L	P365796	
	SM 2540 D-97	TSS	7	I	mg/L	P365629	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P365670	
2091313	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P365353	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P365329	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P365287	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P365284	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P365345	
2091315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365153	
2091334	EPA 200.7 Rev. 4.4	Iron	340		ug/L	P365226	
		Manganese	76.4		ug/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	215		ug/L	P365226	
		Antimony	0.063	I	ug/L	P365226	
		Arsenic	0.58		ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.51	I	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Ref. Method and Comment:
EPA 300.0: Bromide: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample. The result was confirmed on 06/14/2019.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: The result was confirmed on 06/18/2019.

Sample Location: FB_06042019 **Collection Date/Time: 06/04/2019 12:30**

Field ID: FB_06042019 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2091319	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P365011	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P365319	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P365483	
	SM 2540 D-97	TSS	2	U	mg/L	P365629	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365484	
2091320	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P365354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P365415	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365201	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P365281	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P365345	
2091321	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365152	
2091335	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P365226	
		Manganese	1.0	U	ug/L	P365226	
		Zinc	5.0	U	ug/L	P365226	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P365226	
		Antimony	0.050	U	ug/L	P365226	
		Arsenic	0.050	U	ug/L	P365226	
		Cadmium	0.020	U	ug/L	P365226	
		Chromium	0.40	U	ug/L	P365226	
		Copper	0.40	U	ug/L	P365226	
		Lead	0.20	U	ug/L	P365226	
		Nickel	0.50	U	ug/L	P365226	
		Selenium	0.20	U	ug/L	P365226	
		Silver	0.010	U	ug/L	P365226	
		Thallium	0.10	U	ug/L	P365226	

Ref. Method and Comment:
EPA 300.0: Bromide: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365011

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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
Batch ID: P365319

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365353

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365354

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365570

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365329

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365469

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365201

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365287

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365281

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365284

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365152

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365153

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P365483

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

Reference Method: SM 2320 B-97
Batch ID: P365796

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

Reference Method: SM 2540 D-97
Batch ID: P365629

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365484

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365670

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365345

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: P365226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Manganese	101		P	85 - 115
Zinc	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.6		P	85 - 115
Antimony	99.6		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	102		P	85 - 115
Copper	99.7		P	85 - 115
Lead	95.3		P	85 - 115
Nickel	101		P	85 - 115
Selenium	99.5		P	85 - 115
Silver	99.7		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P365319

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365353

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365354

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365570

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365329

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365469

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365287

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: P365281

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365284

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365152

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P365483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P365796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P365670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365345

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091050	Iron	105		P	80 - 120
2091050	Manganese	101		P	80 - 120
2091050	Zinc	101		P	80 - 120
2091397	Iron	106	105	P/P	80 - 120
2091397	Manganese	100	97.8	P/P	80 - 120
2091397	Zinc	100	99.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091050	Aluminum	97.4		P	80 - 120
2091050	Antimony	99.7		P	80 - 120
2091050	Arsenic	99.5		P	80 - 120
2091050	Cadmium	100		P	80 - 120
2091050	Chromium	100		P	80 - 120
2091050	Copper	98.7		P	80 - 120
2091050	Lead	94.4		P	80 - 120
2091050	Nickel	99.4		P	80 - 120
2091050	Selenium	96.2		P	80 - 120
2091050	Silver	98.5		P	80 - 120
2091050	Thallium	101		P	80 - 120
2091397	Aluminum	97.1	99.1	P/P	80 - 120
2091397	Antimony	98.5	99.4	P/P	80 - 120
2091397	Arsenic	99.1	99.3	P/P	80 - 120
2091397	Cadmium	101	101	P/P	80 - 120
2091397	Chromium	97.9	99.7	P/P	80 - 120
2091397	Copper	96.0	97.2	P/P	80 - 120
2091397	Lead	92.9	94.0	P/P	80 - 120
2091397	Nickel	97.8	99.0	P/P	80 - 120
2091397	Selenium	95.8	96.9	P/P	80 - 120
2091397	Silver	99.8	99.4	P/P	80 - 120
2091397	Thallium	100	102	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091129	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091386	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091317	Ammonia-N	97.4	97.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091121	Kjeldahl Nitrogen	102	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091350	Kjeldahl Nitrogen	108	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091624	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091184	NO2NO3-N	96.5	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091129	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091184	Total-P	101	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091624	Total-P	92.2	92.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091389	O-Phosphate-P	98.9	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091318	O-Phosphate-P	95.9	95.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P365484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091382	Fluoride	104	104	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092789	Fluoride	98.9	98.3	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091183	Organic Carbon	93.4	96.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091178	Turbidity	2.39	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091397	Iron	0.437	Spike	P	0 - 20
2091397	Manganese	2.04	Spike	P	0 - 20
2091397	Zinc	0.724	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091397	Aluminum	1.99	Spike	P	0 - 20
2091397	Antimony	0.928	Spike	P	0 - 20
2091397	Arsenic	0.163	Spike	P	0 - 20
2091397	Cadmium	0.307	Spike	P	0 - 20
2091397	Chromium	1.82	Spike	P	0 - 20
2091397	Copper	1.30	Spike	P	0 - 20
2091397	Lead	1.10	Spike	P	0 - 20
2091397	Nickel	1.19	Spike	P	0 - 20
2091397	Selenium	1.13	Spike	P	0 - 20
2091397	Silver	0.412	Spike	P	0 - 20
2091397	Thallium	2.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091129	Ammonia-N	1.64	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091386	Ammonia-N	0.655	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091317	Ammonia-N	0.434	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091121	Kjeldahl Nitrogen	6.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091350	Kjeldahl Nitrogen	8.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091624	Kjeldahl Nitrogen	2.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091184	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091129	NO2NO3-N	0.952	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091184	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091624	Total-P	0.272	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091389	O-Phosphate-P	0.605	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091318	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P365483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091382	Total Alkalinity	0.0345	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P365796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092789	Total Alkalinity	0.831	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P365484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091382	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092789	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091183	Organic Carbon	2.07	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: EPA 180.1 Rev. 2.0
Run ID: A91849
Included Lab Sample IDs: 2091310, 2091311, 2091316, 2091319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A91890
Included Lab Sample IDs: 2091314, 2091315, 2091318, 2091321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	98.6	P/P	90 - 110
O-Phosphate-P	99.4	99.0	P/P	90 - 110
O-Phosphate-P	99.9	99.3	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A91896
Included Lab Sample IDs: 2091310, 2091311, 2091316, 2091319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.4	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91913
Included Lab Sample IDs: 2091320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.0	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91947
Included Lab Sample IDs: 2091312, 2091313, 2091317

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A91962
Included Lab Sample IDs: 2091333, 2091334, 2091335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	103	P/P	90 - 110
Iron	103	103	P/P	95 - 105
Manganese	100	101	P/P	95 - 105
Manganese	100	101	P/P	90 - 110
Zinc	101	103	P/P	90 - 110
Zinc	101	104	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A91981
Included Lab Sample IDs: 2091312, 2091313, 2091317, 2091320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91986
Included Lab Sample IDs: 2091312, 2091313, 2091320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	109	P/P	90 - 110
Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91989
Included Lab Sample IDs: 2091312, 2091313, 2091317, 2091320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.5	P/P	90 - 110
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A92025
Included Lab Sample IDs: 2091312, 2091313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.8	98.3	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A92039
Included Lab Sample IDs: 2091319

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

Reference Method: SM 4500 F-C-97
Run ID: A92039
Included Lab Sample IDs: 2091319

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A92075
Included Lab Sample IDs: 2091317

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A92090
Included Lab Sample IDs: 2091320

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A92113
Included Lab Sample IDs: 2091310, 2091311, 2091316

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A92113
Included Lab Sample IDs: 2091310, 2091311, 2091316

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A92125
Included Lab Sample IDs: 2091317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A92153
Included Lab Sample IDs: 2091333, 2091334, 2091335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	98.6	P/P	90 - 110
Aluminum	98.6	103	P/P	90 - 110
Antimony	96.7	97.4	P/P	90 - 110
Antimony	96.9	96.7	P/P	90 - 110
Arsenic	98.0	99.2	P/P	90 - 110
Arsenic	99.5	98.0	P/P	90 - 110
Cadmium	99.7	100	P/P	90 - 110
Cadmium	100	99.1	P/P	90 - 110
Chromium	101	103	P/P	90 - 110
Chromium	103	95.9	P/P	90 - 110
Copper	100	99.7	P/P	90 - 110
Copper	99.9	100	P/P	90 - 110
Lead	94.1	95.4	P/P	90 - 110
Lead	95.4	94.8	P/P	90 - 110
Nickel	100	99.8	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Selenium	97.5	98.4	P/P	90 - 110
Selenium	98.4	97.7	P/P	90 - 110
Silver	96.9	97.6	P/P	90 - 110
Silver	97.6	97.4	P/P	90 - 110
Thallium	94.5	95.0	P/P	90 - 110
Thallium	95.0	94.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A92164
Included Lab Sample IDs: 2091310, 2091311, 2091316

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	106	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						2.39	
EPA 200.7 Rev. 4.4	Iron	106	105	106	105			0.437
	Manganese	101	101	100	97.8			2.04
	Zinc	99.8	101	100	99.4			0.724
EPA 200.8 Rev. 5.4	Aluminum	98.6	97.4	97.1	99.1			1.99
	Antimony	99.6	99.7	98.5	99.4			0.928
	Arsenic	101	99.5	99.1	99.3			0.163
	Cadmium	101	100	101	101			0.307
	Chromium	102	100	97.9	99.7			1.82
	Copper	99.7	98.7	96.0	97.2			1.30
	Lead	95.3	94.4	92.9	94.0			1.10
	Nickel	101	99.4	97.8	99.0			1.19
	Selenium	99.5	96.2	95.8	96.9			1.13
	Silver	99.7	98.5	99.8	99.4			0.412
	Thallium	102	101	100	102			2.34
EPA 300.0	Bromide	99.2						
EPA 350.1 Rev. 2.0	Ammonia-N	100	104	106				1.64
	Ammonia-N	104	102	103				0.655
	Ammonia-N	97.0	97.4	97.0				0.434
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	102	109				6.28
	Kjeldahl Nitrogen	96.0	108	97.9				8.85
	Kjeldahl Nitrogen	102	101	103				2.08
EPA 353.2 Rev. 2.0	NO2NO3-N	96.0	96.5	96.5				0.0
	NO2NO3-N	100	103	102				0.952
EPA 365.1 Rev. 2.0	Total-P	99.6	101	99.3				1.53
	Total-P	101	92.2	92.5				0.272
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	98.9	99.5				0.605
	O-Phosphate-P	99.4	95.9	95.9				0.0
SM 2320 B-97	Total Alkalinity	103					0.0345	
	Total Alkalinity	104					0.831	
SM 4500 F-C-97	Fluoride	97.1	104	104				0.0
	Fluoride	97.5	98.9	98.3				0.473
SM 5310 B-00	Organic Carbon	98.4	93.4	96.4				2.07

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2091310, 2091311, 2091316, 2091319
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2091333, 2091334, 2091335
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2091333, 2091334, 2091335
EPA 300.0 / E31780	Bromide in aqueous matrices	2091310, 2091311, 2091316, 2091319
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2091312, 2091313, 2091317, 2091320
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2091312, 2091313, 2091317, 2091320
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2091312, 2091313, 2091317, 2091320
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2091312, 2091313, 2091317, 2091320
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2091314, 2091315, 2091318, 2091321
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2091310, 2091311, 2091316, 2091319

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2091310, 2091311, 2091316, 2091319
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2091310, 2091311, 2091316, 2091319
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2091312, 2091313, 2091317, 2091320

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	06/04/2019			06/04/2019 17:24	Julia Storbeck	2091310, 2091311, 2091316, 2091319
EPA 200.7 Rev. 4.4	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 14:14	Betina Topolski	2091335
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 17:00	Betina Topolski	2091333
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/07/2019 17:07	Betina Topolski	2091334
EPA 200.8 Rev. 5.4	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/17/2019 22:46	Robert K Palmer	2091335
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/18/2019 01:52	Robert K Palmer	2091333
	06/04/2019	06/06/2019 17:10	Elliott D. Healy	06/18/2019 02:02	Robert K Palmer	2091334
EPA 300.0	06/04/2019			06/06/2019 11:48	Lipi Saha	2091310
	06/04/2019			06/06/2019 12:57	Lipi Saha	2091311
	06/04/2019			06/06/2019 13:14	Lipi Saha	2091316
	06/04/2019			06/06/2019 13:31	Lipi Saha	2091319
EPA 350.1 Rev. 2.0	06/04/2019			06/06/2019 14:54	Ping Hua	2091312
	06/04/2019			06/06/2019 14:55	Ping Hua	2091313
	06/04/2019			06/06/2019 15:25	Ping Hua	2091320
	06/04/2019			06/12/2019 14:41	Ping Hua	2091317
EPA 351.2 Rev. 2.0	06/04/2019	06/10/2019 10:00	Adrian Shelby	06/11/2019 13:38	Joseph Suarez	2091312
	06/04/2019	06/10/2019 10:00	Adrian Shelby	06/11/2019 13:40	Joseph Suarez	2091313
	06/04/2019	06/11/2019 10:00	Adrian Shelby	06/13/2019 10:25	Joseph Suarez	2091320
	06/04/2019	06/12/2019 10:45	Adrian Shelby	06/14/2019 12:48	Joseph Suarez	2091317
EPA 353.2 Rev. 2.0	06/04/2019			06/06/2019 11:50	Beverly Y. Sanders	2091320
	06/04/2019			06/07/2019 10:30	Beverly Y. Sanders	2091312
	06/04/2019			06/07/2019 10:31	Beverly Y. Sanders	2091313
	06/04/2019			06/07/2019 10:32	Beverly Y. Sanders	2091317
EPA 365.1 Rev. 2.0	06/04/2019	06/07/2019 11:40	Sima Feizi	06/10/2019 15:10	Julia Storbeck	2091320
	06/04/2019	06/07/2019 11:40	Sima Feizi	06/10/2019 15:51	Julia Storbeck	2091312
	06/04/2019	06/07/2019 11:40	Sima Feizi	06/10/2019 15:52	Julia Storbeck	2091313
	06/04/2019	06/07/2019 11:40	Sima Feizi	06/10/2019 15:53	Julia Storbeck	2091317
EPA 365.1 Rev. 2.0 dissolved	06/04/2019			06/05/2019 16:47	Jhamieka S. Greenwood	2091318
	06/04/2019			06/05/2019 17:06	Jhamieka S. Greenwood	2091321
	06/04/2019			06/05/2019 17:19	Jhamieka S. Greenwood	2091314
	06/04/2019			06/05/2019 17:20	Jhamieka S. Greenwood	2091315
SM 2320 B-97	06/04/2019			06/11/2019 22:01	Dale L. Simmons	2091319
	06/04/2019			06/17/2019 23:26	Dale L. Simmons	2091310
	06/04/2019			06/17/2019 23:37	Dale L. Simmons	2091311
	06/04/2019			06/17/2019 23:46	Dale L. Simmons	2091316
SM 2540 D-97	06/04/2019			06/06/2019 15:49	Yijie Li	2091310, 2091311, 2091316, 2091319
SM 4500 F-C-97	06/04/2019			06/11/2019 22:01	Dale L. Simmons	2091319
	06/04/2019			06/14/2019 02:27	Dale L. Simmons	2091310
	06/04/2019			06/14/2019 02:40	Dale L. Simmons	2091311
	06/04/2019			06/14/2019 02:51	Dale L. Simmons	2091316

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	06/04/2019			06/07/2019 11:21	Julia Storbeck	2091312
	06/04/2019			06/07/2019 11:39	Julia Storbeck	2091313
	06/04/2019			06/07/2019 11:54	Julia Storbeck	2091317
	06/04/2019			06/08/2019 12:09	Julia Storbeck	2091320