Chemical Analysis Report

TLH-ROC-2019-06-05-01

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

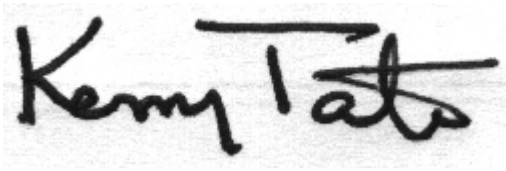
Event Description: **Run 13**
Request ID: **RQ-2019-05-27-44**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 25-JUN-2019 12:58



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: HORSESHOE CREEK 100M UPSTREAM FROM INTERCOASTAL/LAKE WIMICO **Collection Date/Time: 06/05/2019 11:35**

Field ID: G2TLHR0033 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092044	EPA 180.1 Rev. 2.0	Turbidity	4.9	A	NTU	P365139	
	EPA 300.0 Rev. 2.1	Chloride	1.8E+03		mg Cl/L	P365524	
		Sulfate	270		mg SO4/L	P365526	
	SM 2120 B	Color (true)	17	A	PCU	P365220	
	SM 2320 B-97	Total Alkalinity	56		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	3.13E+03		mg/L	P365637	
	SM 2540 D-97	TSS	5	I	mg/L	P365860	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P365567	
2092048	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P365575	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P365550	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P365478	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P365491	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P365429	
2092052	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365155	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: DOUBLE BAYOU 800M UPSTREAM FROM LAKE WIMICO **Collection Date/Time: 06/05/2019 12:10**

Field ID: G2TLHR0003 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092045	EPA 180.1 Rev. 2.0	Turbidity	8.2		NTU	P365139	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P365524	
		Sulfate	7.3		mg SO4/L	P365526	
	SM 2120 B	Color (true)	23		PCU	P365220	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	97		mg/L	P365637	
	SM 2540 D-97	TSS	5	I	mg/L	P365860	
	SM 4500 F-C-97	Fluoride	0.070	I	mg F/L	P365567	
2092049	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365576	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P365497	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365380	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P365455	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P365429	
2092053	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365154	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: SAUL CREEK @ MOUTH **Collection Date/Time: 06/05/2019 12:35**

Field ID: G2TLHR0014 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092046	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P365139	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P365524	
		Sulfate	5.3		mg SO4/L	P365526	
	SM 2120 B	Color (true)	17		PCU	P365220	
	SM 2320 B-97	Total Alkalinity	54		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	83		mg/L	P365637	
	SM 2540 D-97	TSS	5	I	mg/L	P365860	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P365567	
2092050	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365576	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P365497	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P365380	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P365455	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P365430	
2092054	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365154	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: INTERCOASTAL 450M D-STREAM PINE LOG BOAT RAMP **Collection Date/Time: 06/05/2019 12:55**

Field ID: G2TLHR0034 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092047	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P365139	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P365524	
		Sulfate	8.4		mg SO4/L	P365526	
	SM 2120 B	Color (true)	14		PCU	P365220	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	121	A	mg/L	P365637	
	SM 2540 D-97	TSS	6	IA	mg/L	P365860	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P365567	
2092051	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P365576	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P365497	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P365380	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P365455	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P365430	
2092055	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365154	
2092068	EPA 200.7 Rev. 4.4	Barium	22.2		ug/L	P365364	
		Calcium	18.2		mg/L	P365364	
		Iron	420		ug/L	P365364	
		Magnesium	3.86		mg/L	P365364	
		Potassium	2.0		mg/L	P365364	
		Sodium	18.6		mg/L	P365364	
		Zinc	5.0	U	ug/L	P365364	
	EPA 200.8 Rev. 5.4	Aluminum	241		ug/L	P365364	
		Antimony	0.050	U	ug/L	P365364	
		Arsenic	0.39		ug/L	P365364	
		Boron**	20.0		ug/L	P365364	
		Cadmium	0.020	U	ug/L	P365364	
		Chromium	0.49	I	ug/L	P365364	
		Copper	0.46	I	ug/L	P365364	
		Lead	0.20	U	ug/L	P365364	
		Nickel	0.50	U	ug/L	P365364	
		Selenium	0.20	U	ug/L	P365364	
		Silver	0.010	U	ug/L	P365364	
		Thallium	0.10	U	ug/L	P365364	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365139

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365364

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: P365364

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: P365524

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365526

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365575

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: P365576

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365497

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365380

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365455

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365154

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365155

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2120 B
Batch ID: P365220

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P365561

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

Reference Method: SM 2540 C-97
Batch ID: P365637

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365860

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365429

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

Reference Method: SM 5310 B-00
Batch ID: P365430

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: P365364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	98.7		P	85 - 115
Calcium	101		P	85 - 115
Iron	104		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	101		P	85 - 115
Sodium	98.9		P	85 - 115
Zinc	96.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.0		P	85 - 115
Antimony	93.7		P	85 - 115
Arsenic	98.2		P	85 - 115
Boron	97.5		P	85 - 115
Cadmium	96.4		P	85 - 115
Chromium	103		P	85 - 115
Copper	102		P	85 - 115
Lead	90.3		P	85 - 115
Nickel	95.5		P	85 - 115
Selenium	101		P	85 - 115
Silver	92.8		P	85 - 115
Thallium	94.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365524

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365526

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365575

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365576

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365497

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365154

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365155

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P365220

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-97
Batch ID: P365561

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

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092808	Barium	99.0	102	P/P	80 - 120
2092808	Calcium	107		P	80 - 120
2092808	Iron	105	107	P/P	80 - 120
2092808	Magnesium	103		P	80 - 120
2092808	Potassium	103	105	P/P	80 - 120
2092808	Sodium	104		P	80 - 120
2092808	Zinc	96.7	99.3	P/P	80 - 120
2092809	Barium	99.8		P	80 - 120
2092809	Calcium	101		P	80 - 120
2092809	Iron	105		P	80 - 120
2092809	Magnesium	101		P	80 - 120
2092809	Potassium	101		P	80 - 120
2092809	Sodium	101		P	80 - 120
2092809	Zinc	97.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092808	Aluminum	91.5	92.5	P/P	80 - 120
2092808	Antimony	95.9	96.4	P/P	80 - 120
2092808	Arsenic	94.9	95.5	P/P	80 - 120
2092808	Boron	96.1	96.6	P/P	80 - 120
2092808	Cadmium	97.9	97.5	P/P	80 - 120
2092808	Chromium	103	103	P/P	80 - 120
2092808	Copper	100	99.5	P/P	80 - 120
2092808	Lead	90.0	92.3	P/P	80 - 120
2092808	Nickel	90.9	91.2	P/P	80 - 120
2092808	Selenium	104	104	P/P	80 - 120
2092808	Silver	92.6	93.3	P/P	80 - 120
2092808	Thallium	95.7	99.5	P/P	80 - 120
2092809	Aluminum	90.8		P	80 - 120
2092809	Antimony	94.7		P	80 - 120
2092809	Arsenic	94.9		P	80 - 120
2092809	Boron	96.8		P	80 - 120
2092809	Cadmium	95.8		P	80 - 120
2092809	Chromium	103		P	80 - 120
2092809	Copper	102		P	80 - 120
2092809	Lead	92.9		P	80 - 120
2092809	Nickel	90.3		P	80 - 120
2092809	Selenium	104		P	80 - 120
2092809	Silver	92.1		P	80 - 120
2092809	Thallium	98.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091832	Chloride	98.6		P	90 - 110
2092046	Chloride	102		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091832	Sulfate	97.6		P	90 - 110
2092046	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092048	Ammonia-N	97.3	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092049	Ammonia-N	96.8	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092030	Kjeldahl Nitrogen	103	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091981	Kjeldahl Nitrogen	109	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092049	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091980	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092030	Total-P	98.4	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091973	Total-P	91.7	97.3	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091914	O-Phosphate-P	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092032	O-Phosphate-P	92.8	94.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092187	Fluoride	97.2	96.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091548	Organic Carbon	93.1	91.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092084	Organic Carbon	97.0	94.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092044	Turbidity	3.24	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092808	Barium	3.02	Spike	P	0 - 20
2092808	Calcium	2.14	Spike	P	0 - 20
2092808	Iron	1.64	Spike	P	0 - 20
2092808	Magnesium	0.424	Spike	P	0 - 20
2092808	Potassium	1.49	Spike	P	0 - 20
2092808	Sodium	1.90	Spike	P	0 - 20
2092808	Zinc	2.71	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092808	Aluminum	1.10	Spike	P	0 - 20
2092808	Antimony	0.487	Spike	P	0 - 20
2092808	Arsenic	0.607	Spike	P	0 - 20
2092808	Boron	0.433	Spike	P	0 - 20
2092808	Cadmium	0.424	Spike	P	0 - 20
2092808	Chromium	0.318	Spike	P	0 - 20
2092808	Copper	0.428	Spike	P	0 - 20
2092808	Lead	2.53	Spike	P	0 - 20
2092808	Nickel	0.297	Spike	P	0 - 20
2092808	Selenium	0.587	Spike	P	0 - 20
2092808	Silver	0.798	Spike	P	0 - 20
2092808	Thallium	3.92	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091832	Chloride	0.519	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091832	Sulfate	0.208	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092048	Ammonia-N	0.580	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092049	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092030	Kjeldahl Nitrogen	4.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091981	Kjeldahl Nitrogen	0.811	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092049	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091980	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092030	Total-P	3.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091973	Total-P	5.81	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091914	O-Phosphate-P	0.998	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092032	O-Phosphate-P	1.50	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092044	Color (true)	0.583	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P365561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092187	Total Alkalinity	0.616	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P365637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092047	TDS	3.31	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092187	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091548	Organic Carbon	1.03	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P365430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092084	Organic Carbon	2.50	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A91888
Included Lab Sample IDs: 2092044, 2092045, 2092046, 2092047

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A91890
Included Lab Sample IDs: 2092052, 2092053, 2092054, 2092055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A91919
Included Lab Sample IDs: 2092044, 2092045, 2092046, 2092047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91977
Included Lab Sample IDs: 2092049, 2092050, 2092051

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

Reference Method: SM 5310 B-00
Run ID: A92015
Included Lab Sample IDs: 2092048, 2092049, 2092050, 2092051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.3	P/P	90 - 110
Organic Carbon	96.2	95.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A92026
Included Lab Sample IDs: 2092044, 2092045, 2092046, 2092047

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A92038
Included Lab Sample IDs: 2092048

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A92072
Included Lab Sample IDs: 2092044, 2092045, 2092046, 2092047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A92072
Included Lab Sample IDs: 2092044, 2092045, 2092046, 2092047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A92075
Included Lab Sample IDs: 2092048, 2092049, 2092050, 2092051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	P/P	90 - 110
Ammonia-N	98.4	99.7	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A92095
Included Lab Sample IDs: 2092068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	90 - 110
Calcium	102	104	P/P	90 - 110
Iron	102	104	P/P	90 - 110
Magnesium	101	104	P/P	90 - 110
Potassium	102	103	P/P	90 - 110
Sodium	100	103	P/P	90 - 110
Zinc	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A92108
Included Lab Sample IDs: 2092049, 2092050, 2092051

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A92118
Included Lab Sample IDs: 2092048, 2092049, 2092050, 2092051

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A92152
Included Lab Sample IDs: 2092048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.6	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A92190
Included Lab Sample IDs: 2092068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.3	97.7	P/P	90 - 110
Antimony	95.1	94.5	P/P	90 - 110
Arsenic	98.1	96.3	P/P	90 - 110
Boron	98.7	102	P/P	90 - 110
Cadmium	97.7	97.9	P/P	90 - 110
Lead	91.6	93.4	P/P	90 - 110
Nickel	98.6	96.4	P/P	90 - 110
Silver	94.0	94.0	P/P	90 - 110
Thallium	90.6	93.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A92282
Included Lab Sample IDs: 2092068

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.6	99.1	P/P	90 - 110
Copper	98.4	99.4	P/P	90 - 110
Selenium	97.1	99.5	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						3.24	
EPA 200.7 Rev. 4.4	Barium	98.7	99.0	102	99.8			3.02
	Calcium	101	107	101				2.14
	Iron	104	105	107	105			1.64
	Magnesium	101	103	101				0.424
	Potassium	101	103	105	101			1.49
	Sodium	98.9	104	101				1.90
	Zinc	96.7	96.7	99.3	97.6			2.71
EPA 200.8 Rev. 5.4	Aluminum	96.0	91.5	92.5	90.8			1.10
	Antimony	93.7	95.9	96.4	94.7			0.487
	Arsenic	98.2	94.9	95.5	94.9			0.607
	Boron	97.5	96.1	96.6	96.8			0.433
	Cadmium	96.4	97.9	97.5	95.8			0.424
	Chromium	103	103	103	103			0.318
	Copper	102	102	100	99.5			0.428
	Lead	90.3	90.0	92.3	92.9			2.53
	Nickel	95.5	90.9	91.2	90.3			0.297
	Selenium	101	104	104	104			0.587
	Silver	92.8	92.6	93.3	92.1			0.798
	Thallium	94.4	95.7	99.5	98.0			3.92
EPA 300.0 Rev. 2.1	Chloride	101	98.6	102			0.519	
	Sulfate	101	97.6	103			0.208	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	97.3	98.0				0.580
	Ammonia-N	97.3	96.8	98.3				1.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	109				4.18
	Kjeldahl Nitrogen	103	109	110				0.811
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	98.5	98.0				0.509
	NO2NO3-N	102	104	103				0.484
EPA 365.1 Rev. 2.0	Total-P	106	98.4	102				3.82
	Total-P	99.3	91.7	97.3				5.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	99.6	101				0.998
	O-Phosphate-P	99.3	92.8	94.2				1.50
SM 2120 B	Color (true)	100					0.583	
SM 2320 B-97	Total Alkalinity	104					0.616	
SM 2540 C-97	TDS						3.31	
SM 4500 F-C-97	Fluoride	96.9	97.2	96.7				0.482
SM 5310 B-00	Organic Carbon	95.8	93.1	91.6				1.03
	Organic Carbon	98.1	97.0	94.3				2.50

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2092044, 2092045, 2092046, 2092047
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2092068
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2092068
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2092044, 2092045, 2092046, 2092047
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2092044, 2092045, 2092046, 2092047
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2092048, 2092049, 2092050, 2092051

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2092048, 2092049, 2092050, 2092051
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2092048, 2092049, 2092050, 2092051
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2092048, 2092049, 2092050, 2092051
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2092052, 2092053, 2092054, 2092055
SM 2120 B / E31780	True Color measured at 450 nm	2092044, 2092045, 2092046, 2092047
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2092044, 2092045, 2092046, 2092047
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2092044, 2092045, 2092046, 2092047
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2092044, 2092045, 2092046, 2092047
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2092044, 2092045, 2092046, 2092047
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2092048, 2092049, 2092050, 2092051

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	06/05/2019			06/05/2019 16:52	Julia Storbeck	2092044, 2092045, 2092046, 2092047
EPA 200.7 Rev. 4.4	06/05/2019	06/11/2019 11:00	Alexander Thompson	06/12/2019 17:31	Betina Topolski	2092068
EPA 200.8 Rev. 5.4	06/05/2019	06/11/2019 11:00	Alexander Thompson	06/18/2019 18:43	Robert K Palmer	2092068
	06/05/2019	06/11/2019 11:00	Alexander Thompson	06/21/2019 15:05	Robert K Palmer	2092068
EPA 300.0 Rev. 2.1	06/05/2019			06/12/2019 16:15	Lipi Saha	2092046
	06/05/2019			06/12/2019 18:29	Lipi Saha	2092044
	06/05/2019			06/12/2019 18:41	Lipi Saha	2092045
	06/05/2019			06/12/2019 18:53	Lipi Saha	2092047
EPA 350.1 Rev. 2.0	06/05/2019			06/12/2019 17:14	Ping Hua	2092048
	06/05/2019			06/12/2019 17:41	Ping Hua	2092049
	06/05/2019			06/12/2019 17:55	Ping Hua	2092050
	06/05/2019			06/12/2019 17:56	Ping Hua	2092051
EPA 351.2 Rev. 2.0	06/05/2019	06/12/2019 15:25	Adrian Shelby	06/14/2019 11:37	Joseph Suarez	2092049
	06/05/2019	06/12/2019 15:25	Adrian Shelby	06/14/2019 11:39	Joseph Suarez	2092050
	06/05/2019	06/12/2019 15:25	Adrian Shelby	06/14/2019 11:40	Joseph Suarez	2092051
	06/05/2019	06/13/2019 10:15	Adrian Shelby	06/17/2019 13:08	Joseph Suarez	2092048
EPA 353.2 Rev. 2.0	06/05/2019			06/10/2019 12:29	Beverly Y. Sanders	2092049
	06/05/2019			06/10/2019 12:41	Beverly Y. Sanders	2092050
	06/05/2019			06/10/2019 12:42	Beverly Y. Sanders	2092051
	06/05/2019			06/12/2019 10:20	Beverly Y. Sanders	2092048
EPA 365.1 Rev. 2.0	06/05/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 16:58	Julia Storbeck	2092049
	06/05/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 16:59	Julia Storbeck	2092050
	06/05/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:00	Julia Storbeck	2092051
	06/05/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:50	Julia Storbeck	2092048
EPA 365.1 Rev. 2.0 dissolved	06/05/2019			06/05/2019 17:34	Jhamieka S. Greenwood	2092053
	06/05/2019			06/05/2019 17:35	Jhamieka S. Greenwood	2092054
	06/05/2019			06/05/2019 17:36	Jhamieka S. Greenwood	2092055
	06/05/2019			06/05/2019 17:38	Jhamieka S. Greenwood	2092052
SM 2120 B	06/05/2019			06/06/2019 15:40	Madeline Funaro	2092044
	06/05/2019			06/06/2019 15:41	Madeline Funaro	2092045
	06/05/2019			06/06/2019 15:42	Madeline Funaro	2092046
	06/05/2019			06/06/2019 15:43	Madeline Funaro	2092047
SM 2320 B-97	06/05/2019			06/13/2019 02:44	Dale L. Simmons	2092045
	06/05/2019			06/13/2019 02:56	Dale L. Simmons	2092046
	06/05/2019			06/13/2019 03:08	Dale L. Simmons	2092047
	06/05/2019			06/13/2019 06:37	Dale L. Simmons	2092044
SM 2540 C-97	06/05/2019			06/10/2019 15:55	Yijie Li	2092044, 2092045, 2092046, 2092047
SM 2540 D-97	06/05/2019			06/10/2019 15:55	Yijie Li	2092044, 2092045, 2092046, 2092047
SM 4500 F-C-97	06/05/2019			06/13/2019 02:44	Dale L. Simmons	2092045
	06/05/2019			06/13/2019 02:56	Dale L. Simmons	2092046

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	06/05/2019			06/13/2019 03:08	Dale L. Simmons	2092047
	06/05/2019			06/13/2019 06:37	Dale L. Simmons	2092044
SM 5310 B-00	06/05/2019			06/10/2019 11:09	Madeline Funaro	2092048
	06/05/2019			06/10/2019 11:22	Madeline Funaro	2092049
	06/05/2019			06/11/2019 01:39	Madeline Funaro	2092050
	06/05/2019			06/11/2019 01:54	Madeline Funaro	2092051