

Chemical Analysis Report

TLH-ROC-2019-08-14-01

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

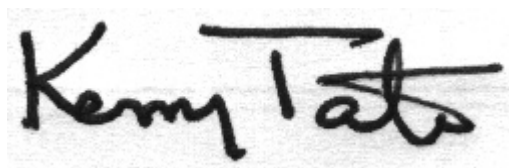
Event Description: **Run 4**
Request ID: **RQ-2019-08-12-33**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 11-SEP-2019 14:56

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Lake Seminole 200m from boat ramp @ River Rd **Collection Date/Time: 08/14/2019 10:15**

Field ID: G2TLHR0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2111626	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P369079	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P369494	
		Sulfate	9.4		mg SO4/L	P369497	
		Color (true)	13		PCU	P369048	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P369443	
	SM 2540 C-97	TDS	46		mg/L	P369724	
	SM 2540 D-97	TSS	3	I	mg/L	P369478	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P369446	
2111627	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P369467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P369362	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P369415	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P369181	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P369233	
2111628	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369096	
2111646	EPA 200.7 Rev. 4.4	Barium	18.0		ug/L	P369121	
		Calcium	7.21		mg/L	P369121	
		Iron	180		ug/L	P369121	
		Magnesium	2.02		mg/L	P369121	
		Potassium	2.3		mg/L	P369121	
		Sodium	8.6		mg/L	P369121	
		Zinc	5.0	U	ug/L	P369121	
	EPA 200.8 Rev. 5.4	Aluminum	98		ug/L	P369121	
		Antimony	0.080	I	ug/L	P369121	
		Arsenic	0.63		ug/L	P369121	
		Boron**	20.3		ug/L	P369121	
		Cadmium	0.020	U	ug/L	P369121	
		Chromium	0.40	U	ug/L	P369121	
		Copper	0.91		ug/L	P369121	
		Lead	0.20	U	ug/L	P369121	
		Nickel	0.50	U	ug/L	P369121	
		Selenium	0.20	U	ug/L	P369121	
		Silver	0.010	U	ug/L	P369121	
		Thallium	0.10	U	ug/L	P369121	

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: South Mosquito Creek @ Power Line

Collection Date/Time: 08/14/2019 11:25

Field ID: G2TLHR0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2111629	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P369079	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P369494	
		Sulfate	0.45	I	mg SO4/L	P369497	
		Color (true)	51		PCU	P369049	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P369443	
	SM 2540 C-97	TDS	37		mg/L	P369725	
	SM 2540 D-97	TSS	18		mg/L	P369479	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P369446	
2111632	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P369467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P369362	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.50		mg N/L	P369415	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P369181	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P369233	
2111635	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P369096	
2111647	EPA 200.7 Rev. 4.4	Barium	20.2		ug/L	P369121	
		Calcium	4.94		mg/L	P369121	
		Iron	1.16E+03		ug/L	P369121	
		Magnesium	2.59		mg/L	P369121	
		Potassium	0.52	I	mg/L	P369121	
		Sodium	2.6		mg/L	P369121	
		Zinc	5.0	U	ug/L	P369121	
	EPA 200.8 Rev. 5.4	Aluminum	619		ug/L	P369121	
		Antimony	0.050	U	ug/L	P369121	
		Arsenic	0.69		ug/L	P369121	
		Boron**	9.1		ug/L	P369121	
		Cadmium	0.020	U	ug/L	P369121	
		Chromium	0.91	I	ug/L	P369121	
		Copper	0.40	U	ug/L	P369121	
		Lead	0.52		ug/L	P369121	
		Nickel	0.50	U	ug/L	P369121	
		Selenium	0.20	U	ug/L	P369121	
		Silver	0.010	U	ug/L	P369121	
		Thallium	0.10	U	ug/L	P369121	

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: Unnamed Branch @ Flat Creek Rd

Collection Date/Time: 08/14/2019 11:55

Field ID: G2TLHR0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2111630	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P369079	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P369494	
		Sulfate	0.81		mg SO4/L	P369497	
	SM 2120 B	Color (true)	46		PCU	P369049	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P369443	
	SM 2540 C-97	TDS	55		mg/L	P369725	
	SM 2540 D-97	TSS	9	I	mg/L	P369479	
	SM 4500 F-C-97	Fluoride	0.068	I	mg F/L	P369446	
2111633	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P369467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P369362	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.64		mg N/L	P369415	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P369182	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P369233	
2111636	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P369096	
2111648	EPA 200.7 Rev. 4.4	Barium	25.1		ug/L	P369121	
		Calcium	9.09		mg/L	P369121	
		Iron	830		ug/L	P369121	
		Magnesium	3.82		mg/L	P369121	
		Potassium	0.89	I	mg/L	P369121	
		Sodium	2.9		mg/L	P369121	
		Zinc	5.0	U	ug/L	P369121	
	EPA 200.8 Rev. 5.4	Aluminum	379		ug/L	P369121	
		Antimony	0.050	U	ug/L	P369121	
		Arsenic	0.63		ug/L	P369121	
		Boron**	11.0		ug/L	P369121	
		Cadmium	0.020	U	ug/L	P369121	
		Chromium	0.65	I	ug/L	P369121	
		Copper	0.69	I	ug/L	P369121	
		Lead	0.37	I	ug/L	P369121	
		Nickel	0.50	U	ug/L	P369121	
		Selenium	0.20	U	ug/L	P369121	
		Silver	0.010	U	ug/L	P369121	
		Thallium	0.10	U	ug/L	P369121	

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: Unnamed Branch @ Hardaway Rd 2

Collection Date/Time: 08/14/2019 12:25

Field ID: G2TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2111631	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P369079	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P369494	
		Sulfate	0.62		mg SO4/L	P369497	
		Color (true)	38	A	PCU	P369049	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P369443	
	SM 2540 C-97	TDS	21	I	mg/L	P369725	
	SM 2540 D-97	TSS	7	I	mg/L	P369479	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P369446	
2111634	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P369467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P369362	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P369415	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P369182	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P369233	
2111637	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P369096	
2111649	EPA 200.7 Rev. 4.4	Barium	14.0		ug/L	P369121	
		Calcium	1.45		mg/L	P369121	
		Iron	1.02E+03		ug/L	P369121	
		Magnesium	0.86		mg/L	P369121	
		Potassium	0.30	U	mg/L	P369121	
		Sodium	2.4		mg/L	P369121	
		Zinc	5.0	U	ug/L	P369121	
	EPA 200.8 Rev. 5.4	Aluminum	225		ug/L	P369121	
		Antimony	0.050	U	ug/L	P369121	
		Arsenic	0.91		ug/L	P369121	
		Boron**	8.3		ug/L	P369121	
		Cadmium	0.020	U	ug/L	P369121	
		Chromium	0.41	I	ug/L	P369121	
		Copper	0.40	U	ug/L	P369121	
		Lead	0.26	I	ug/L	P369121	
		Nickel	0.50	U	ug/L	P369121	
		Selenium	0.20	U	ug/L	P369121	
		Silver	0.010	U	ug/L	P369121	
		Thallium	0.10	U	ug/L	P369121	

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: P369079

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369121

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: P369121

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: P369494

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369497

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369467

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: P369362

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369415

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369181

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369182

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369096

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

Reference Method: SM 2120 B
Batch ID: P369048

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369049

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P369443

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

Reference Method: SM 2540 C-97
Batch ID: P369724

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P369725

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369478

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369479

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369446

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369233

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: P369121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	105		P	85 - 115
Iron	106		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	108		P	85 - 115
Sodium	97.5		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.9		P	85 - 115
Antimony	98.7		P	85 - 115
Arsenic	101		P	85 - 115
Boron	101		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	99.6		P	85 - 115
Copper	99.2		P	85 - 115
Lead	101		P	85 - 115
Nickel	99.9		P	85 - 115
Selenium	96.4		P	85 - 115
Silver	100		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369494

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369497

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369467

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369362

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369415

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369182

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369096

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.0		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P369048

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

Reference Method: SM 2120 B
Batch ID: P369049

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

Reference Method: SM 2320 B-97
Batch ID: P369443

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

Reference Method: SM 4500 F-C-97
Batch ID: P369446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369233

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111646	Barium	102	102	P/P	80 - 120
2111646	Calcium	105		P	80 - 120
2111646	Iron	104	106	P/P	80 - 120
2111646	Magnesium	106	107	P/P	80 - 120
2111646	Potassium	102	106	P/P	80 - 120
2111646	Sodium	99.3		P	80 - 120
2111646	Zinc	100	100	P/P	80 - 120
2111792	Barium	100		P	80 - 120
2111792	Calcium	103		P	80 - 120
2111792	Iron	105		P	80 - 120
2111792	Magnesium	104		P	80 - 120
2111792	Potassium	103		P	80 - 120
2111792	Sodium	99.1		P	80 - 120
2111792	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111646	Aluminum	97.1	95.8	P/P	80 - 120
2111646	Antimony	100	101	P/P	80 - 120
2111646	Arsenic	103	102	P/P	80 - 120
2111646	Boron	101	98.8	P/P	80 - 120
2111646	Cadmium	103	103	P/P	80 - 120
2111646	Chromium	101	99.9	P/P	80 - 120
2111646	Copper	98.4	98.3	P/P	80 - 120
2111646	Lead	103	101	P/P	80 - 120
2111646	Nickel	101	101	P/P	80 - 120
2111646	Selenium	95.5	94.9	P/P	80 - 120
2111646	Silver	101	98.6	P/P	80 - 120
2111646	Thallium	105	104	P/P	80 - 120
2111792	Aluminum	98.0		P	80 - 120
2111792	Antimony	101		P	80 - 120
2111792	Arsenic	104		P	80 - 120
2111792	Boron	99.5		P	80 - 120
2111792	Cadmium	102		P	80 - 120
2111792	Chromium	99.0		P	80 - 120
2111792	Copper	99.0		P	80 - 120
2111792	Lead	103		P	80 - 120
2111792	Nickel	99.6		P	80 - 120
2111792	Selenium	97.9		P	80 - 120
2111792	Silver	99.9		P	80 - 120
2111792	Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111407	Chloride	99.8		P	90 - 110
2111608	Chloride	99.8		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111407	Sulfate	102		P	90 - 110
2111608	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111627	Ammonia-N	101	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111621	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111621	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111627	Total-P	107	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111706	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111628	O-Phosphate-P	98.3	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P369446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111696	Fluoride	98.2	96.5	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2111621	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111661	Turbidity	12.4	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111646	Barium	0.0839	Spike	P	0 - 20
2111646	Calcium	0.693	Spike	P	0 - 20
2111646	Iron	2.07	Spike	P	0 - 20
2111646	Magnesium	1.23	Spike	P	0 - 20
2111646	Potassium	2.24	Spike	P	0 - 20
2111646	Sodium	0.315	Spike	P	0 - 20
2111646	Zinc	0.0742	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111646	Aluminum	1.21	Spike	P	0 - 20
2111646	Antimony	0.177	Spike	P	0 - 20
2111646	Arsenic	0.311	Spike	P	0 - 20
2111646	Boron	2.01	Spike	P	0 - 20
2111646	Cadmium	0.686	Spike	P	0 - 20
2111646	Chromium	0.866	Spike	P	0 - 20
2111646	Copper	0.0887	Spike	P	0 - 20
2111646	Lead	1.81	Spike	P	0 - 20
2111646	Nickel	0.308	Spike	P	0 - 20
2111646	Selenium	0.578	Spike	P	0 - 20
2111646	Silver	2.22	Spike	P	0 - 20
2111646	Thallium	0.844	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111407	Chloride	1.45	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111407	Sulfate	1.75	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111627	Ammonia-N	0.676	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111621	Kjeldahl Nitrogen	0.265	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111621	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111627	Total-P	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111706	Total-P	2.28	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111628	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111543	Color (true)	0.432	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111631	Color (true)	3.25	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P369443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111696	Total Alkalinity	0.565	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P369724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111536	TDS	3.64	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P369725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111696	TDS	0.587	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P369446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111696	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P369233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2111621	Organic Carbon	0.203	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A93516

Included Lab Sample IDs: 2111626, 2111629, 2111630, 2111631

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93525

Included Lab Sample IDs: 2111626, 2111629, 2111630, 2111631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93535

Included Lab Sample IDs: 2111628, 2111635, 2111636, 2111637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	99.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93581

Included Lab Sample IDs: 2111646, 2111647, 2111648, 2111649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	101	P/P	90 - 110
Barium	102	102	P/P	90 - 110
Calcium	101	102	P/P	90 - 110
Calcium	102	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	100	99.5	P/P	90 - 110
Potassium	99.8	100	P/P	90 - 110
Zinc	100	99.3	P/P	90 - 110
Zinc	99.3	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93586

Included Lab Sample IDs: 2111627, 2111632, 2111633, 2111634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93591

Included Lab Sample IDs: 2111632, 2111633, 2111634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	107	P/P	90 - 110
Total-P	107	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93599

Included Lab Sample IDs: 2111627

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93607

Included Lab Sample IDs: 2111646, 2111647, 2111648, 2111649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	100	96.9	P/P	95 - 105
Sodium	96.9	99.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93642

Included Lab Sample IDs: 2111646, 2111647, 2111648, 2111649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.8	95.0	P/P	90 - 110
Aluminum	97.9	99.4	P/P	90 - 110
Aluminum	98.7	96.8	P/P	90 - 110
Antimony	92.4	93.6	P/P	90 - 110
Antimony	93.6	94.0	P/P	90 - 110
Antimony	95.5	95.5	P/P	90 - 110
Arsenic	100	96.9	P/P	90 - 110
Arsenic	96.9	100	P/P	90 - 110
Arsenic	98.8	98.1	P/P	90 - 110
Boron	94.2	92.7	P/P	90 - 110
Boron	97.6	94.2	P/P	90 - 110
Boron	98.3	97.9	P/P	90 - 110
Cadmium	94.8	96.0	P/P	90 - 110
Cadmium	96.1	94.8	P/P	90 - 110
Cadmium	98.0	97.4	P/P	90 - 110
Chromium	96.4	96.7	P/P	90 - 110
Chromium	96.7	96.7	P/P	90 - 110
Chromium	99.9	100	P/P	90 - 110
Copper	101	96.6	P/P	90 - 110
Copper	96.6	99.0	P/P	90 - 110
Copper	99.1	98.4	P/P	90 - 110
Lead	101	100	P/P	90 - 110
Lead	98.8	98.3	P/P	90 - 110
Lead	99.0	98.8	P/P	90 - 110
Nickel	100	95.7	P/P	90 - 110
Nickel	95.7	98.4	P/P	90 - 110
Nickel	98.2	98.4	P/P	90 - 110
Silver	101	99.6	P/P	90 - 110
Silver	97.2	99.3	P/P	90 - 110
Silver	99.1	97.2	P/P	90 - 110
Thallium	92.4	92.0	P/P	90 - 110
Thallium	93.4	92.4	P/P	90 - 110
Thallium	98.1	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93671

Included Lab Sample IDs: 2111627, 2111632, 2111633, 2111634

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93684

Included Lab Sample IDs: 2111627, 2111632, 2111633, 2111634

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

Reference Method: SM 2320 B-97

Run ID: A93694

Included Lab Sample IDs: 2111626, 2111629, 2111630, 2111631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93694

Included Lab Sample IDs: 2111626, 2111629, 2111630, 2111631

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93709

Included Lab Sample IDs: 2111627, 2111632, 2111633, 2111634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93717

Included Lab Sample IDs: 2111626, 2111629, 2111630, 2111631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94068

Included Lab Sample IDs: 2111646, 2111647, 2111648, 2111649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	100	98.5	P/P	90 - 110
Selenium	98.5	99.1	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					12.4	
EPA 200.7 Rev. 4.4	Barium	103	102	102	100		0.0839
	Calcium	105	105	103			0.693
	Iron	106	104	106	105		2.07
	Magnesium	112	106	107	104		1.23
	Potassium	108	102	106	103		2.24
	Sodium	97.5	99.3	99.1			0.315
	Zinc	100	100	100	103		0.0742
EPA 200.8 Rev. 5.4	Aluminum	99.9	97.1	95.8	98.0		1.21
	Antimony	98.7	100	101	101		0.177
	Arsenic	101	103	102	104		0.311
	Boron	101	99.5	101	98.8		2.01
	Cadmium	101	103	103	102		0.686
	Chromium	99.6	101	99.9	99.0		0.866
	Copper	99.2	98.4	98.3	99.0		0.0887
	Lead	101	103	101	103		1.81
	Nickel	99.9	101	101	99.6		0.308
	Selenium	96.4	95.5	94.9	97.9		0.578
	Silver	100	101	98.6	99.9		2.22
	Thallium	101	105	104	107		0.844
EPA 300.0 Rev. 2.1	Chloride	100	99.8	99.8		1.45	
	Sulfate	104	102	104		1.75	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	99.7			0.676
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	101	101			0.265
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	109	107	104			2.03
	Total-P	106	105	107			2.28
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	98.3	98.3			0.0
SM 2120 B	Color (true)	101				0.432	
	Color (true)	101				3.25	
SM 2320 B-97	Total Alkalinity	103				0.565	
SM 2540 C-97	TDS					3.64	
	TDS					0.587	
SM 4500 F-C-97	Fluoride	100	98.2	96.5			1.48
SM 5310 B-00	Organic Carbon	101	100	100			0.203

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2111626, 2111629, 2111630, 2111631
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2111646, 2111647, 2111648, 2111649
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2111646, 2111647, 2111648, 2111649
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2111626, 2111629, 2111630, 2111631
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2111626, 2111629, 2111630, 2111631
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2111627, 2111632, 2111633, 2111634
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2111627, 2111632, 2111633, 2111634
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2111627, 2111632, 2111633, 2111634

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2111627, 2111632, 2111633, 2111634
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2111628, 2111635, 2111636, 2111637
SM 2120 B / E31780	True Color measured at 450 nm	2111626, 2111629, 2111630, 2111631
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2111626, 2111629, 2111630, 2111631
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2111626, 2111629, 2111630, 2111631
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2111626, 2111629, 2111630, 2111631
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2111626, 2111629, 2111630, 2111631
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2111627, 2111632, 2111633, 2111634

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/14/2019			08/14/2019 19:08	Rosalyn Ballman	2111626, 2111629, 2111630, 2111631
EPA 200.7 Rev. 4.4	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/16/2019 16:45	Alexander Thompson	2111646
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/16/2019 17:34	Alexander Thompson	2111647
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/16/2019 17:40	Alexander Thompson	2111648
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/16/2019 17:47	Alexander Thompson	2111649
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/19/2019 11:45	Alexander Thompson	2111646
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/19/2019 12:16	Alexander Thompson	2111647
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/19/2019 12:20	Alexander Thompson	2111648
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/19/2019 12:25	Alexander Thompson	2111649
EPA 200.8 Rev. 5.4	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/19/2019 22:20	Martin Acosta	2111646
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/20/2019 08:02	Martin Acosta	2111647
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/20/2019 08:41	Martin Acosta	2111648
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	08/20/2019 08:50	Martin Acosta	2111649
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	09/09/2019 03:18	Robert K Palmer	2111646
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	09/09/2019 05:03	Robert K Palmer	2111647
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	09/09/2019 05:12	Robert K Palmer	2111648
	08/14/2019	08/15/2019 16:05	Elliott D. Healy	09/09/2019 05:20	Robert K Palmer	2111649
EPA 300.0 Rev. 2.1	08/14/2019			08/21/2019 10:24	Jhamieka S. Greenwood	2111626
	08/14/2019			08/21/2019 10:36	Jhamieka S. Greenwood	2111629
	08/14/2019			08/21/2019 10:48	Jhamieka S. Greenwood	2111630
	08/14/2019			08/21/2019 11:25	Jhamieka S. Greenwood	2111631
EPA 350.1 Rev. 2.0	08/14/2019			08/21/2019 13:24	Ping Hua	2111627
	08/14/2019			08/21/2019 13:42	Ping Hua	2111632
	08/14/2019			08/21/2019 13:44	Ping Hua	2111633
	08/14/2019			08/21/2019 13:45	Ping Hua	2111634
EPA 351.2 Rev. 2.0	08/14/2019	08/20/2019 11:35	Sima Feizi	08/21/2019 10:43	Joseph Suarez	2111627
	08/14/2019	08/20/2019 11:35	Sima Feizi	08/21/2019 10:45	Joseph Suarez	2111632
	08/14/2019	08/20/2019 11:35	Sima Feizi	08/21/2019 10:46	Joseph Suarez	2111633
	08/14/2019	08/20/2019 11:35	Sima Feizi	08/21/2019 10:48	Joseph Suarez	2111634
EPA 353.2 Rev. 2.0	08/14/2019			08/21/2019 10:03	Beverly Y. Sanders	2111627
	08/14/2019			08/21/2019 10:04	Beverly Y. Sanders	2111632
	08/14/2019			08/21/2019 10:06	Beverly Y. Sanders	2111633
	08/14/2019			08/21/2019 10:07	Beverly Y. Sanders	2111634
EPA 365.1 Rev. 2.0	08/14/2019	08/16/2019 13:30	Vijayalakshmi Reddy	08/19/2019 10:26	Lipi Saha	2111632
	08/14/2019	08/16/2019 13:30	Vijayalakshmi Reddy	08/19/2019 10:35	Lipi Saha	2111633
	08/14/2019	08/16/2019 13:30	Vijayalakshmi Reddy	08/19/2019 10:36	Lipi Saha	2111634
	08/14/2019	08/16/2019 13:30	Vijayalakshmi Reddy	08/19/2019 13:05	Lipi Saha	2111627
EPA 365.1 Rev. 2.0 dissolved	08/14/2019			08/14/2019 17:27	Jhamieka S. Greenwood	2111628
	08/14/2019			08/14/2019 18:11	Jhamieka S. Greenwood	2111635
	08/14/2019			08/14/2019 18:12	Jhamieka S. Greenwood	2111636

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved SM 2120 B	08/14/2019			08/14/2019 18:22	Jhamieka S. Greenwood	2111637
	08/14/2019			08/14/2019 17:48	Madeline Funaro	2111626
	08/14/2019			08/14/2019 17:52	Madeline Funaro	2111629, 2111630
	08/14/2019			08/14/2019 17:54	Madeline Funaro	2111631
SM 2320 B-97	08/14/2019			08/21/2019 05:49	Dale L. Simmons	2111626
	08/14/2019			08/21/2019 06:00	Dale L. Simmons	2111629
	08/14/2019			08/21/2019 06:12	Dale L. Simmons	2111630
	08/14/2019			08/21/2019 06:23	Dale L. Simmons	2111631
SM 2540 C-97	08/14/2019			08/19/2019 15:20	Yijie Li	2111626, 2111629, 2111630, 2111631
SM 2540 D-97	08/14/2019			08/19/2019 15:20	Yijie Li	2111626, 2111629, 2111630, 2111631
SM 4500 F-C-97	08/14/2019			08/21/2019 05:49	Dale L. Simmons	2111626
	08/14/2019			08/21/2019 06:00	Dale L. Simmons	2111629
	08/14/2019			08/21/2019 06:12	Dale L. Simmons	2111630
	08/14/2019			08/21/2019 06:23	Dale L. Simmons	2111631
SM 5310 B-00	08/14/2019			08/17/2019 05:37	Madeline Funaro	2111627
	08/14/2019			08/17/2019 05:49	Madeline Funaro	2111632
	08/14/2019			08/17/2019 06:01	Madeline Funaro	2111633
	08/14/2019			08/17/2019 06:13	Madeline Funaro	2111634