

Chemical Analysis Report

NW-DIST-2019-08-06-03

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

Event Description: **Holmes Run**
Request ID: **RQ-2019-08-05-87**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
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Certified by: Colin Wright, Program Administrator

Date Certified: 03-SEP-2019 11:50

A handwritten signature in black ink, reading "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Gum Creek upstream of River Rd

Collection Date/Time: 08/05/2019 10:15

Field ID: G3NW0439

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2108863	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P368570	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P369055	
		Sulfate	0.32	I	mg SO4/L	P369057	
		Color (true)	110		PCU	P368524	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P369140	
	SM 2540 C-97	TDS	35		mg/L	P368938	
	SM 2540 D-97	TSS	4	I	mg/L	P368924	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369144	
2108867	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P369008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P368695	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368734	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P368576	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P368644	
2108871	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368520	
2108883	EPA 200.7 Rev. 4.4	Barium	11.9		ug/L	P368724	
		Calcium	1.02		mg/L	P368724	
		Iron	1.22E+03		ug/L	P368724	
		Magnesium	0.58		mg/L	P368724	
		Potassium	0.30	U	mg/L	P368724	
		Sodium	2.0		mg/L	P368724	
		Zinc	5.0	U	ug/L	P368724	
	EPA 200.8 Rev. 5.4	Aluminum	386		ug/L	P369671	
		Antimony	0.050	U	ug/L	P369671	
		Arsenic	0.53		ug/L	P369671	
		Boron**	8.4		ug/L	P369671	
		Cadmium	0.020	U	ug/L	P369671	
		Chromium	0.46	I	ug/L	P369671	
		Copper	0.40	U	ug/L	P369671	
		Lead	0.40		ug/L	P369671	
		Nickel	0.50	U	ug/L	P369671	
		Selenium	0.20	U	ug/L	P369671	
		Silver	0.010	U	ug/L	P369671	
		Thallium	0.10	U	ug/L	P369671	

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: Choctawhatchee River upstream Hwy 90 Boat Ramp **Collection Date/Time: 08/05/2019 10:35**

Field ID: G3NW0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2108864	EPA 180.1 Rev. 2.0	Turbidity	20	A	NTU	P368570	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P369055	
		Sulfate	3.4		mg SO4/L	P369057	
		Color (true)	11	AJ	PCU	P369155	RPD
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P369140	
	SM 2540 C-97	TDS	74		mg/L	P368940	
	SM 2540 D-97	TSS	17		mg/L	P368925	
	SM 4500 F-C-97	Fluoride	0.050	I	mg F/L	P369144	
2108868	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P369008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P368695	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.75		mg N/L	P368734	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P368576	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P368644	
2108872	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P368520	
2108884	EPA 200.7 Rev. 4.4	Barium	23.5		ug/L	P368724	
		Calcium	13.7		mg/L	P368724	
		Iron	860		ug/L	P368724	
		Magnesium	2.40		mg/L	P368724	
		Potassium	1.6		mg/L	P368724	
		Sodium	5.1		mg/L	P368724	
		Zinc	5.0	U	ug/L	P368724	
	EPA 200.8 Rev. 5.4	Aluminum	867		ug/L	P369671	
		Antimony	0.061	I	ug/L	P369671	
		Arsenic	0.87		ug/L	P369671	
		Boron**	15.5		ug/L	P369671	
		Cadmium	0.020	U	ug/L	P369671	
		Chromium	1.8		ug/L	P369671	
		Copper	0.64	I	ug/L	P369671	
		Lead	0.67		ug/L	P369671	
		Nickel	0.64	I	ug/L	P369671	
		Selenium	0.20	U	ug/L	P369671	
		Silver	0.010	U	ug/L	P369671	
		Thallium	0.10	U	ug/L	P369671	

Ref. Method and Comment:

SM 2120 B: Refer to the narrative for an explanation of QC Codes.

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

Sample Location: East Pittman Creek upstream of Hwy 179

Collection Date/Time: 08/05/2019 11:20

Field ID: G3NW0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2108865	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P368570	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P369055	
		Sulfate	0.44	I	mg SO4/L	P369057	
		Color (true)	31		PCU	P368524	
	SM 2320 B-97	Total Alkalinity	8.8		mg CaCO3/L	P369140	
	SM 2540 C-97	TDS	28		mg/L	P368940	
	SM 2540 D-97	TSS	2	I	mg/L	P368925	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369144	
2108869	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P369008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P368695	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.2		mg N/L	P368734	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P368710	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P368644	
2108873	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368520	
2108885	EPA 200.7 Rev. 4.4	Barium	23.7		ug/L	P368724	
		Calcium	3.79		mg/L	P368724	
		Iron	750		ug/L	P368724	
		Magnesium	1.73		mg/L	P368724	
		Potassium	0.62	I	mg/L	P368724	
		Sodium	3.0		mg/L	P368724	
		Zinc	5.0	U	ug/L	P368724	
	EPA 200.8 Rev. 5.4	Aluminum	100		ug/L	P369671	
		Antimony	0.050	U	ug/L	P369671	
		Arsenic	0.34		ug/L	P369671	
		Boron**	8.1		ug/L	P369671	
		Cadmium	0.025	I	ug/L	P369671	
		Chromium	0.40	U	ug/L	P369671	
		Copper	0.40	U	ug/L	P369671	
		Lead	0.20	U	ug/L	P369671	
		Nickel	1.1	I	ug/L	P369671	
		Selenium	0.20	U	ug/L	P369671	
		Silver	0.010	U	ug/L	P369671	
		Thallium	0.10	U	ug/L	P369671	

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: Limestone Branch upstream of Mt. Ida Rd

Collection Date/Time: 08/05/2019 11:45

Field ID: G3NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2108866	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P368570	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P369055	
		Sulfate	2.0		mg SO4/L	P369057	
		Color (true)	12		PCU	P368524	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P369140	
	SM 2540 C-97	TDS	140	A	mg/L	P368940	
	SM 2540 D-97	TSS	2	IA	mg/L	P368925	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P369144	
2108870	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P369008	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P368695	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P368734	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P368710	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P368644	
2108874	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P368520	
2108886	EPA 200.7 Rev. 4.4	Barium	14.8		ug/L	P368724	
		Calcium	46.8		mg/L	P368724	
		Iron	280		ug/L	P368724	
		Magnesium	2.48		mg/L	P368724	
		Potassium	0.56	I	mg/L	P368724	
		Sodium	2.7		mg/L	P368724	
		Zinc	5.0	U	ug/L	P368724	
	EPA 200.8 Rev. 5.4	Aluminum	43		ug/L	P369671	
		Antimony	0.050	U	ug/L	P369671	
		Arsenic	0.30		ug/L	P369671	
		Boron**	9.3		ug/L	P369671	
		Cadmium	0.020	U	ug/L	P369671	
		Chromium	0.40	U	ug/L	P369671	
		Copper	0.40	U	ug/L	P369671	
		Lead	0.20	U	ug/L	P369671	
		Nickel	0.50	U	ug/L	P369671	
		Selenium	0.20	U	ug/L	P369671	
		Silver	0.010	U	ug/L	P369671	
		Thallium	0.10	U	ug/L	P369671	

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: P368570

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368724

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: P369671

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: P369055

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369057

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369008

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: P368695

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368576

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368710

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368520

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

Reference Method: SM 2120 B
Batch ID: P368524

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369155

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P369140

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

Reference Method: SM 2540 C-97
Batch ID: P368938

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P368940

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368924

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368925

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369144

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368644

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: P368724

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	100		P	85 - 115
Iron	100		P	85 - 115
Magnesium	99.9		P	85 - 115
Potassium	106		P	85 - 115
Sodium	102		P	85 - 115
Zinc	98.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.6		P	85 - 115
Antimony	99.0		P	85 - 115
Arsenic	104		P	85 - 115
Boron	98.4		P	85 - 115
Cadmium	99.4		P	85 - 115
Chromium	101		P	85 - 115
Copper	100		P	85 - 115
Lead	101		P	85 - 115
Nickel	98.6		P	85 - 115
Selenium	101		P	85 - 115
Silver	105		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369055

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369057

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368695

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368734

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: P368576

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368520

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

Reference Method: SM 2120 B
Batch ID: P368524

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

Reference Method: SM 2120 B
Batch ID: P369155

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P369140

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P369144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368644

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: P368724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108886	Barium	99.3		P	80 - 120
2108886	Calcium	95.1		P	80 - 120
2108886	Iron	101		P	80 - 120
2108886	Magnesium	101		P	80 - 120
2108886	Potassium	108		P	80 - 120
2108886	Sodium	115		P	80 - 120
2108886	Zinc	98.1		P	80 - 120
2109519	Barium	99.9	99.9	P/P	80 - 120
2109519	Calcium	98.7		P	80 - 120
2109519	Iron	99.8	102	P/P	80 - 120
2109519	Magnesium	97.0		P	80 - 120
2109519	Potassium	105	107	P/P	80 - 120
2109519	Sodium	111	110	P/P	80 - 120
2109519	Zinc	97.9	97.3	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108885	Aluminum	98.0	100	P/P	80 - 120
2108885	Antimony	99.8	100	P/P	80 - 120
2108885	Arsenic	99.9	101	P/P	80 - 120
2108885	Boron	94.5	99.8	P/P	80 - 120
2108885	Cadmium	99.8	103	P/P	80 - 120
2108885	Chromium	102	103	P/P	80 - 120
2108885	Copper	98.3	99.9	P/P	80 - 120
2108885	Lead	99.9	101	P/P	80 - 120
2108885	Nickel	89.4	93.8	P/P	80 - 120
2108885	Selenium	97.7	98.4	P/P	80 - 120
2108885	Silver	104	105	P/P	80 - 120
2108885	Thallium	103	105	P/P	80 - 120
2109520	Aluminum	97.5		P	80 - 120
2109520	Antimony	102		P	80 - 120
2109520	Arsenic	101		P	80 - 120
2109520	Boron	99.1		P	80 - 120
2109520	Cadmium	101		P	80 - 120
2109520	Chromium	99.7		P	80 - 120
2109520	Copper	94.6		P	80 - 120
2109520	Lead	99.3		P	80 - 120
2109520	Nickel	93.2		P	80 - 120
2109520	Selenium	98.2		P	80 - 120
2109520	Silver	105		P	80 - 120
2109520	Thallium	102		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108839	Chloride	94.1		P	90 - 110
2109087	Chloride	93.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P369057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108839	Sulfate	99.6		P	90 - 110
2109087	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P369008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108870	Ammonia-N	95.6	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P368695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108868	Kjeldahl Nitrogen	96.4	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P368734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108867	NO2NO3-N	98.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108774	Total-P	99.1	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P368710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108870	Total-P	102	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P368520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108872	O-Phosphate-P	98.1	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P369144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109610	Fluoride	101	99.5	P/P	89 - 106

Reference Method: SM 5310 B-00
 Batch ID: P368644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2108905	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108864	Turbidity	0.506	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P368724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109519	Barium	0.0479	Spike	P	0 - 20
2109519	Calcium	0.0511	Spike	P	0 - 20
2109519	Iron	2.04	Spike	P	0 - 20
2109519	Magnesium	1.48	Spike	P	0 - 20
2109519	Potassium	1.71	Spike	P	0 - 20
2109519	Sodium	0.276	Spike	P	0 - 20
2109519	Zinc	0.597	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108885	Aluminum	1.78	Spike	P	0 - 20
2108885	Antimony	0.454	Spike	P	0 - 20
2108885	Arsenic	1.44	Spike	P	0 - 20
2108885	Boron	5.05	Spike	P	0 - 20
2108885	Cadmium	3.00	Spike	P	0 - 20
2108885	Chromium	0.782	Spike	P	0 - 20
2108885	Copper	1.68	Spike	P	0 - 20
2108885	Lead	0.913	Spike	P	0 - 20
2108885	Nickel	4.47	Spike	P	0 - 20
2108885	Selenium	0.654	Spike	P	0 - 20
2108885	Silver	1.18	Spike	P	0 - 20
2108885	Thallium	2.46	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108839	Chloride	0.605	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108839	Sulfate	0.688	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108870	Ammonia-N	0.134	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108868	Kjeldahl Nitrogen	6.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108867	NO2NO3-N	2.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108774	Total-P	0.931	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108870	Total-P	3.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108872	O-Phosphate-P	0.455	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P368524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108839	Color (true)	2.41	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108864	Color (true)	33.1	Sample	F	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P369140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109610	Total Alkalinity	0.209	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P368938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108601	TDS	7.59	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P368940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108866	TDS	2.86	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P369144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109610	Fluoride	0.940	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P368644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2108905	Organic Carbon	0.0	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 365.1 Rev. 2.0 dissolved

Run ID: A93298

Included Lab Sample IDs: 2108871, 2108872, 2108873, 2108874

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	100	99.1	P/P	90 - 110
O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A93299

Included Lab Sample IDs: 2108863, 2108865, 2108866

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93316

Included Lab Sample IDs: 2108863, 2108864, 2108865, 2108866

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93326

Included Lab Sample IDs: 2108867, 2108868, 2108869, 2108870

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

Reference Method: SM 5310 B-00

Run ID: A93344

Included Lab Sample IDs: 2108867, 2108868, 2108869, 2108870

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93378

Included Lab Sample IDs: 2108868

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93384

Included Lab Sample IDs: 2108867

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93394

Included Lab Sample IDs: 2108869, 2108870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93436

Included Lab Sample IDs: 2108867, 2108868, 2108869, 2108870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	96.5	P/P	90 - 110
Kjeldahl Nitrogen	96.5	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93438

Included Lab Sample IDs: 2108883, 2108884, 2108885, 2108886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	102	P/P	90 - 110
Barium	102	102	P/P	90 - 110
Calcium	97.6	97.8	P/P	90 - 110
Calcium	97.8	97.4	P/P	90 - 110
Iron	98.0	98.3	P/P	90 - 110
Iron	98.4	98.0	P/P	90 - 110
Magnesium	97.8	97.4	P/P	90 - 110
Magnesium	98.4	97.8	P/P	90 - 110
Potassium	98.7	99.7	P/P	90 - 110
Potassium	99.9	98.7	P/P	90 - 110
Sodium	107	107	P/P	90 - 110
Sodium	107	107	P/P	90 - 110
Zinc	101	101	P/P	90 - 110
Zinc	101	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93486

Included Lab Sample IDs: 2108863, 2108864, 2108865, 2108866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	99.9	101	P/P	90 - 110
Sulfate	105	107	P/P	90 - 110
Sulfate	107	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93497

Included Lab Sample IDs: 2108867, 2108868, 2108869, 2108870

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.2	P/P	90 - 110
Ammonia-N	98.2	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A93545

Included Lab Sample IDs: 2108863, 2108864, 2108865, 2108866

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

Reference Method: SM 4500 F-C-97

Run ID: A93545

Included Lab Sample IDs: 2108863, 2108864, 2108865, 2108866

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

Reference Method: SM 2120 B

Run ID: A93553

Included Lab Sample IDs: 2108864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	90 - 115

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93823

Included Lab Sample IDs: 2108883, 2108884, 2108885, 2108886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.5	97.7	P/P	90 - 110
Aluminum	98.5	97.5	P/P	90 - 110
Antimony	96.4	97.0	P/P	90 - 110
Antimony	97.1	96.4	P/P	90 - 110
Arsenic	101	99.5	P/P	90 - 110
Arsenic	99.5	98.1	P/P	90 - 110
Cadmium	98.7	98.4	P/P	90 - 110
Cadmium	98.8	98.7	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Chromium	99.1	101	P/P	90 - 110
Copper	100	99.0	P/P	90 - 110
Copper	99.0	97.1	P/P	90 - 110
Lead	100	99.6	P/P	90 - 110
Lead	101	100	P/P	90 - 110
Selenium	97.8	97.0	P/P	90 - 110
Selenium	98.9	97.8	P/P	90 - 110
Silver	106	106	P/P	90 - 110
Silver	106	106	P/P	90 - 110
Thallium	98.7	96.9	P/P	90 - 110
Thallium	99.4	98.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A93935

Included Lab Sample IDs: 2108883, 2108884, 2108885, 2108886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	94.6	96.1	P/P	90 - 110
Boron	96.1	97.9	P/P	90 - 110
Nickel	96.2	95.1	P/P	90 - 110
Nickel	97.1	96.2	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					0.506	
EPA 200.7 Rev. 4.4	Barium	100	99.3	99.9	99.9		0.0479
	Calcium	100	95.1	98.7			0.0511
	Iron	100	101	99.8	102		2.04
	Magnesium	99.9	101	97.0			1.48
	Potassium	106	108	105	107		1.71
	Sodium	102	115	111	110		0.276
	Zinc	98.5	98.1	97.9	97.3		0.597
EPA 200.8 Rev. 5.4	Aluminum	99.6	98.0	100	97.5		1.78
	Antimony	99.0	99.8	100	102		0.454
	Arsenic	104	99.9	101	101		1.44
	Boron	98.4	94.5	99.8	99.1		5.05
	Cadmium	99.4	99.8	103	101		3.00
	Chromium	101	102	103	99.7		0.782
	Copper	100	98.3	99.9	94.6		1.68
	Lead	101	99.9	101	99.3		0.913
	Nickel	98.6	89.4	93.8	93.2		4.47
	Selenium	101	97.7	98.4	98.2		0.654
	Silver	105	104	105	105		1.18
	Thallium	104	103	105	102		2.46
EPA 300.0 Rev. 2.1	Chloride	95.8	94.1	93.6		0.605	
	Sulfate	99.7	99.6	99.8		0.688	
EPA 350.1 Rev. 2.0	Ammonia-N	96.5	95.6	95.4			0.134
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	96.4	105			6.44
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	98.0	100			2.02
EPA 365.1 Rev. 2.0	Total-P	104	99.1	98.1			0.931
	Total-P	99.8	102	98.3			3.41
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	98.1	98.7			0.455
SM 2120 B	Color (true)	100				2.41	
	Color (true)	102				33.1	
SM 2320 B-97	Total Alkalinity	105				0.209	
SM 2540 C-97	TDS					7.59	
	TDS					2.86	
SM 4500 F-C-97	Fluoride	97.0	101	99.5			0.940
SM 5310 B-00	Organic Carbon	101	101	101			0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2108863, 2108864, 2108865, 2108866
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2108883, 2108884, 2108885, 2108886
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2108883, 2108884, 2108885, 2108886
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2108863, 2108864, 2108865, 2108866
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2108863, 2108864, 2108865, 2108866
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2108867, 2108868, 2108869, 2108870
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2108867, 2108868, 2108869, 2108870
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2108867, 2108868, 2108869, 2108870

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	2108867, 2108868, 2108869, 2108870
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2108871, 2108872, 2108873, 2108874
SM 2120 B / E31780	True Color measured at 450 nm	2108863, 2108864, 2108865, 2108866
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2108863, 2108864, 2108865, 2108866
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2108863, 2108864, 2108865, 2108866
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2108863, 2108864, 2108865, 2108866
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2108863, 2108864, 2108865, 2108866
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2108867, 2108868, 2108869, 2108870

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	08/06/2019			08/06/2019 16:32	Samantha Davila	2108863, 2108864, 2108865, 2108866
EPA 200.7 Rev. 4.4	08/06/2019	08/08/2019 17:10	Elliott D. Healy	08/12/2019 17:01	Betina Topolski	2108883
	08/06/2019	08/08/2019 17:10	Elliott D. Healy	08/12/2019 17:29	Betina Topolski	2108884
	08/06/2019	08/08/2019 17:10	Elliott D. Healy	08/12/2019 17:37	Betina Topolski	2108885
	08/06/2019	08/08/2019 17:10	Elliott D. Healy	08/12/2019 17:42	Betina Topolski	2108886
EPA 200.8 Rev. 5.4	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/27/2019 19:27	Justin Cutchin	2108883
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/27/2019 19:36	Justin Cutchin	2108884
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/27/2019 20:14	Justin Cutchin	2108885
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/27/2019 20:43	Justin Cutchin	2108886
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/30/2019 13:37	Robert K Palmer	2108883
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/30/2019 13:43	Robert K Palmer	2108884
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/30/2019 13:49	Robert K Palmer	2108885
	08/06/2019	08/26/2019 15:30	Elliott D. Healy	08/30/2019 14:18	Robert K Palmer	2108886
EPA 300.0 Rev. 2.1	08/06/2019			08/14/2019 19:15	Jhamieka S. Greenwood	2108863
	08/06/2019			08/14/2019 19:51	Jhamieka S. Greenwood	2108864
	08/06/2019			08/14/2019 20:03	Jhamieka S. Greenwood	2108865
	08/06/2019			08/14/2019 20:15	Jhamieka S. Greenwood	2108866
EPA 350.1 Rev. 2.0	08/06/2019			08/13/2019 13:54	Ping Hua	2108870
	08/06/2019			08/13/2019 14:02	Ping Hua	2108867
	08/06/2019			08/13/2019 14:03	Ping Hua	2108868
	08/06/2019			08/13/2019 14:11	Ping Hua	2108869
EPA 351.2 Rev. 2.0	08/06/2019	08/08/2019 10:30	Adrian Shelby	08/12/2019 13:24	Joseph Suarez	2108867
	08/06/2019	08/08/2019 10:30	Adrian Shelby	08/12/2019 13:25	Joseph Suarez	2108868
	08/06/2019	08/08/2019 10:30	Adrian Shelby	08/12/2019 13:33	Joseph Suarez	2108869
	08/06/2019	08/08/2019 10:30	Adrian Shelby	08/12/2019 13:35	Joseph Suarez	2108870
EPA 353.2 Rev. 2.0	08/06/2019			08/07/2019 11:08	Beverly Y. Sanders	2108867
	08/06/2019			08/07/2019 11:14	Beverly Y. Sanders	2108868
	08/06/2019			08/07/2019 12:06	Beverly Y. Sanders	2108869
	08/06/2019			08/07/2019 12:07	Beverly Y. Sanders	2108870
EPA 365.1 Rev. 2.0	08/06/2019	08/07/2019 14:15	Vijayalakshmi Reddy	08/09/2019 09:36	Lipi Saha	2108868
	08/06/2019	08/07/2019 14:15	Vijayalakshmi Reddy	08/09/2019 10:43	Lipi Saha	2108867
	08/06/2019	08/08/2019 13:18	Vijayalakshmi Reddy	08/09/2019 13:19	Lipi Saha	2108870
	08/06/2019	08/08/2019 13:18	Vijayalakshmi Reddy	08/09/2019 13:23	Lipi Saha	2108869
EPA 365.1 Rev. 2.0 dissolved	08/06/2019			08/06/2019 15:08	Jhamieka S. Greenwood	2108872
	08/06/2019			08/06/2019 15:26	Jhamieka S. Greenwood	2108871
	08/06/2019			08/06/2019 15:31	Jhamieka S. Greenwood	2108873
	08/06/2019			08/06/2019 15:32	Jhamieka S. Greenwood	2108874
SM 2120 B	08/06/2019			08/06/2019 15:28	Madeline Funaro	2108863
	08/06/2019			08/06/2019 15:30	Madeline Funaro	2108865, 2108866
	08/06/2019			08/06/2019 16:59	Madeline Funaro	2108864

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	08/06/2019			08/15/2019 00:15	Dale L. Simmons	2108863
	08/06/2019			08/15/2019 00:26	Dale L. Simmons	2108864
	08/06/2019			08/15/2019 00:38	Dale L. Simmons	2108865
	08/06/2019			08/15/2019 00:51	Dale L. Simmons	2108866
SM 2540 C-97	08/06/2019			08/07/2019 15:21	Yijie Li	2108863, 2108864, 2108865, 2108866
SM 2540 D-97	08/06/2019			08/07/2019 15:21	Yijie Li	2108863, 2108864, 2108865, 2108866
SM 4500 F-C-97	08/06/2019			08/15/2019 00:15	Dale L. Simmons	2108863
	08/06/2019			08/15/2019 00:26	Dale L. Simmons	2108864
	08/06/2019			08/15/2019 00:38	Dale L. Simmons	2108865
	08/06/2019			08/15/2019 00:51	Dale L. Simmons	2108866
SM 5310 B-00	08/06/2019			08/07/2019 22:01	Madeline Funaro	2108867
	08/06/2019			08/07/2019 22:13	Madeline Funaro	2108868
	08/06/2019			08/07/2019 22:25	Madeline Funaro	2108869
	08/06/2019			08/07/2019 22:38	Madeline Funaro	2108870