

Chemical Analysis Report

NW-DIST-2019-05-22-01

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

Event Description: **Defuniak Run**
Request ID: **RQ-2019-05-13-29**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Colin Wright, Program Administrator

Date Certified: 06-JUN-2019 10:23

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored 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

Collection Date/Time: 05/21/2019 11:30

Field ID: G4NW0382

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087984	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P364431	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P364629	
		Sulfate	0.69		mg SO4/L	P364632	
	SM 2120 B	Color (true)	59		PCU	P364405	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	27		mg/L	P364925	
	SM 2540 D-97	TSS	4	I	mg/L	P364885	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
2087987	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P364805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P364753	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P364518	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P364716	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P364512	
2087990	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364379	

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: Turkey Creek above Williams Road

Collection Date/Time: 05/21/2019 12:20

Field ID: G4NW0409

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087985	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P364431	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P364629	
		Sulfate	1.2		mg SO4/L	P364632	
	SM 2120 B	Color (true)	35		PCU	P364405	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	25		mg/L	P364925	
	SM 2540 D-97	TSS	5	I	mg/L	P364885	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P364805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P364753	
2087988	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P364518	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P364716	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P364512	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.010	I	mg P/L	P364379	
	dissolved						

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: CANEY CREEK ABOVE HWY 2A

Collection Date/Time: 05/21/2019 12:45

Field ID: G4NW0397

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087986	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P364432	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P364629	
		Sulfate	0.33	I	mg SO4/L	P364632	
	SM 2120 B	Color (true)	48		PCU	P364405	
	SM 2320 B-97	Total Alkalinity	7.3		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	30		mg/L	P364925	
	SM 2540 D-97	TSS	2	I	mg/L	P364885	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
2087989	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P364805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P364753	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P364518	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P364716	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P364512	
2087992	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P364379	

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: Eightmile Creek upstream of CR 181 (South of) Collection Date/Time: 05/21/2019 13:25

Field ID: G3NW0136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087978	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P364431	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P364629	
		Sulfate	0.91		mg SO4/L	P364632	
		Color (true)	47	A	PCU	P364405	
	SM 2320 B-97	Total Alkalinity	42		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	62		mg/L	P364924	
	SM 2540 D-97	TSS	2	I	mg/L	P364884	
	SM 4500 F-C-97	Fluoride	0.035	I	mg F/L	P364871	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P364804	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P364750	
2087980	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P364518	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P364714	
	SM 5310 B-00	Organic Carbon	3.5		mg C/L	P364512	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P364379	
	dissolved						
2088003	EPA 200.7 Rev. 4.4	Barium	15.0		ug/L	P364446	
		Calcium	14.0		mg/L	P364446	
		Iron	360		ug/L	P364446	
		Magnesium	2.57		mg/L	P364446	
		Potassium	0.33	I	mg/L	P364446	
		Sodium	1.6	I	mg/L	P364446	
		Zinc	5.0	U	ug/L	P364446	
		Aluminum	134		ug/L	P364446	
		Antimony	0.050	U	ug/L	P364446	
		Arsenic	0.39		ug/L	P364446	
	EPA 200.8 Rev. 5.4	Boron**	7.2	I	ug/L	P364446	
		Cadmium	0.020	U	ug/L	P364446	
		Chromium	0.54	I	ug/L	P364446	
		Copper	2.01		ug/L	P364446	
		Lead	0.20	U	ug/L	P364446	
		Nickel	0.50	U	ug/L	P364446	
		Selenium	0.20	U	ug/L	P364446	
		Silver	0.010	U	ug/L	P364446	
		Thallium	0.10	U	ug/L	P364446	

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: HUCKLEBERRY CREEK

Collection Date/Time: 05/21/2019 14:05

Field ID: G3NW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087979	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P364431	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P364629	
		Sulfate	0.50	I	mg SO4/L	P364632	
	SM 2120 B	Color (true)	88		PCU	P364405	
	SM 2320 B-97	Total Alkalinity	5.9		mg CaCO3/L	P364860	
	SM 2540 C-97	TDS	20	I	mg/L	P364925	
	SM 2540 D-97	TSS	3	I	mg/L	P364885	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364871	
2087981	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P364805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P364750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P364518	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P364716	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P364512	
2087983	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364379	
2088004	EPA 200.7 Rev. 4.4	Barium	13.5		ug/L	P364446	
		Calcium	2.24		mg/L	P364446	
		Iron	1.28E+03		ug/L	P364446	
		Magnesium	0.99		mg/L	P364446	
		Potassium	0.73	I	mg/L	P364446	
		Sodium	2.1		mg/L	P364446	
		Zinc	5.4	I	ug/L	P364446	
		Aluminum	164		ug/L	P364446	
		Antimony	0.050	U	ug/L	P364446	
		Arsenic	0.55		ug/L	P364446	
	EPA 200.8 Rev. 5.4	Boron**	9.2		ug/L	P364446	
		Cadmium	0.020	U	ug/L	P364446	
		Chromium	0.40	U	ug/L	P364446	
		Copper	2.16		ug/L	P364446	
		Lead	0.23	I	ug/L	P364446	
		Nickel	0.50	U	ug/L	P364446	
		Selenium	0.20	U	ug/L	P364446	
		Silver	0.010	U	ug/L	P364446	
		Thallium	0.10	U	ug/L	P364446	

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: P364431

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364432

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364446

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: P364446

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: P364629

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364804

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364805

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364750

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364518

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364714

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364716

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364379

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

Reference Method: SM 2120 B
Batch ID: P364405

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P364860

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

Reference Method: SM 2540 C-97
Batch ID: P364924

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P364925

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364884

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364885

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364512

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: P364446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	100		P	85 - 115
Iron	103		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.7		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	101		P	85 - 115
Boron	98.0		P	85 - 115
Cadmium	98.7		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	98.3		P	85 - 115
Lead	100		P	85 - 115
Nickel	97.8		P	85 - 115
Selenium	98.3		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364804

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364805

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364750

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

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: P364518

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364716

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364379

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

Reference Method: SM 2120 B
Batch ID: P364405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364860

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

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P364512

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087740	Barium	105		P	80 - 120
2087740	Calcium	99.2		P	80 - 120
2087740	Iron	105		P	80 - 120
2087740	Magnesium	110		P	80 - 120
2087740	Potassium	105		P	80 - 120
2087740	Sodium	101		P	80 - 120
2087740	Zinc	104		P	80 - 120
2088058	Barium	108	104	P/P	80 - 120
2088058	Calcium	102		P	80 - 120
2088058	Iron	105	104	P/P	80 - 120
2088058	Magnesium	107	105	P/P	80 - 120
2088058	Potassium	106	103	P/P	80 - 120
2088058	Sodium	104		P	80 - 120
2088058	Zinc	108	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087740	Aluminum	97.4		P	80 - 120
2087740	Antimony	99.7		P	80 - 120
2087740	Arsenic	102		P	80 - 120
2087740	Boron	98.8		P	80 - 120
2087740	Cadmium	100		P	80 - 120
2087740	Chromium	96.0		P	80 - 120
2087740	Copper	94.9		P	80 - 120
2087740	Lead	102		P	80 - 120
2087740	Nickel	96.4		P	80 - 120
2087740	Selenium	101		P	80 - 120
2087740	Silver	97.0		P	80 - 120
2087740	Thallium	104		P	80 - 120
2088058	Aluminum	98.3	98.3	P/P	80 - 120
2088058	Antimony	101	101	P/P	80 - 120
2088058	Arsenic	101	102	P/P	80 - 120
2088058	Boron	100	100	P/P	80 - 120
2088058	Cadmium	99.5	103	P/P	80 - 120
2088058	Chromium	96.3	95.9	P/P	80 - 120
2088058	Copper	95.9	95.1	P/P	80 - 120
2088058	Lead	102	102	P/P	80 - 120
2088058	Nickel	97.9	97.6	P/P	80 - 120
2088058	Selenium	100	99.4	P/P	80 - 120
2088058	Silver	96.6	97.2	P/P	80 - 120
2088058	Thallium	104	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087942	Chloride	101		P	90 - 110
2087979	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087942	Sulfate	98.7		P	90 - 110
2087979	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087962	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087987	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087911	Kjeldahl Nitrogen	102	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087987	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364518

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087980	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087911	Total-P	95.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087981	Total-P	97.3	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087991	O-Phosphate-P	94.3	94.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2088010	Fluoride	100	98.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087912	Organic Carbon	94.5	94.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P364431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087966	Turbidity	1.74	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P364432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088028	Turbidity	4.03	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P364446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088058	Barium	3.65	Spike	P	0 - 20
2088058	Calcium	2.00	Spike	P	0 - 20
2088058	Iron	1.49	Spike	P	0 - 20
2088058	Magnesium	1.66	Spike	P	0 - 20
2088058	Potassium	1.87	Spike	P	0 - 20
2088058	Sodium	1.19	Spike	P	0 - 20
2088058	Zinc	3.74	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P364446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088058	Aluminum	0.0119	Spike	P	0 - 20
2088058	Antimony	0.0164	Spike	P	0 - 20
2088058	Arsenic	0.395	Spike	P	0 - 20
2088058	Boron	0.0709	Spike	P	0 - 20
2088058	Cadmium	3.09	Spike	P	0 - 20
2088058	Chromium	0.444	Spike	P	0 - 20
2088058	Copper	0.679	Spike	P	0 - 20
2088058	Lead	0.155	Spike	P	0 - 20
2088058	Nickel	0.301	Spike	P	0 - 20
2088058	Selenium	0.787	Spike	P	0 - 20
2088058	Silver	0.560	Spike	P	0 - 20
2088058	Thallium	1.12	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P364629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087942	Chloride	0.0277	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087942	Sulfate	0.0332	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087962	Ammonia-N	0.749	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087987	Ammonia-N	1.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087911	Kjeldahl Nitrogen	1.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087987	Kjeldahl Nitrogen	2.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364518

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087980	NO2NO3-N	0.551	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087911	Total-P	4.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087981	Total-P	0.921	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087991	O-Phosphate-P	0.288	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087978	Color (true)	1.12	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Total Alkalinity	0.367	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P364924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087700	TDS	4.65	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P364925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	TDS	1.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2088010	Fluoride	0.986	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087912	Organic Carbon	0.181	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: A91599

Included Lab Sample IDs: 2087982, 2087983, 2087990, 2087991, 2087992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	99.2	97.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91604

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91617

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105
Turbidity	98.5	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91642

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91657

Included Lab Sample IDs: 2087980, 2087981, 2087987, 2087988, 2087989

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

Reference Method: SM 5310 B-00

Run ID: A91661

Included Lab Sample IDs: 2087980, 2087981, 2087987, 2087988, 2087989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	95.8	P/P	90 - 110
Organic Carbon	95.8	96.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91672

Included Lab Sample IDs: 2088003, 2088004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	106	105	P/P	90 - 110
Calcium	101	98.6	P/P	90 - 110
Iron	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91672

Included Lab Sample IDs: 2088003, 2088004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	102	101	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	102	101	P/P	90 - 110
Zinc	105	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91743

Included Lab Sample IDs: 2088003, 2088004

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.8	95.5	P/P	90 - 110
Antimony	96.5	96.2	P/P	90 - 110
Arsenic	95.8	94.1	P/P	90 - 110
Boron	95.8	96.3	P/P	90 - 110
Cadmium	96.4	95.8	P/P	90 - 110
Chromium	94.0	94.2	P/P	90 - 110
Copper	94.0	93.4	P/P	90 - 110
Lead	97.6	96.7	P/P	90 - 110
Nickel	94.4	93.4	P/P	90 - 110
Selenium	95.9	95.7	P/P	90 - 110
Silver	94.0	93.8	P/P	90 - 110
Thallium	94.2	94.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91780

Included Lab Sample IDs: 2087980, 2087981, 2087987, 2087988, 2087989

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91785

Included Lab Sample IDs: 2087989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91790

Included Lab Sample IDs: 2087980, 2087981, 2087987, 2087988

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91798

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A91798

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91799

Included Lab Sample IDs: 2087978, 2087979, 2087984, 2087985, 2087986

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91810

Included Lab Sample IDs: 2087980, 2087981, 2087987, 2087988, 2087989

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110
Kjeldahl Nitrogen	103	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision	MS
							SMP	
EPA 180.1 Rev. 2.0	Turbidity						1.74	
	Turbidity						4.03	
EPA 200.7 Rev. 4.4	Barium	104	105	108	104			3.65
	Calcium	100	99.2	102				2.00
	Iron	103	105	105	104			1.49
	Magnesium	106	110	107	105			1.66
	Potassium	102	105	106	103			1.87
	Sodium	101	101	104				1.19
	Zinc	101	104	108	104			3.74
EPA 200.8 Rev. 5.4	Aluminum	97.7	97.4	98.3	98.3			0.0119
	Antimony	97.3	99.7	101	101			0.0164
	Arsenic	101	102	101	102			0.395
	Boron	98.0	98.8	100	100			0.0709
	Cadmium	98.7	100	99.5	103			3.09
	Chromium	97.9	96.0	96.3	95.9			0.444
	Copper	98.3	94.9	95.9	95.1			0.679
	Lead	100	102	102	102			0.155
	Nickel	97.8	96.4	97.9	97.6			0.301
	Selenium	98.3	101	100	99.4			0.787
	Silver	98.4	97.0	96.6	97.2			0.560
	Thallium	101	104	104	105			1.12
EPA 300.0 Rev. 2.1	Chloride	100	101	100			0.0277	
	Sulfate	99.1	98.7	99.5			0.0332	
EPA 350.1 Rev. 2.0	Ammonia-N	100	102	101				0.749
	Ammonia-N	102	102	103				1.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	102	99.7				1.16
	Kjeldahl Nitrogen	103	109	106				2.08
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	100	99.5				0.551
EPA 365.1 Rev. 2.0	Total-P	97.2	95.8	101				4.16
	Total-P	97.0	97.3	96.4				0.921
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	94.3	94.6				0.288
SM 2120 B	Color (true)	99.9					1.12	
SM 2320 B-97	Total Alkalinity	105					0.367	
SM 2540 C-97	TDS						4.65	
	TDS						1.76	
SM 4500 F-C-97	Fluoride	98.9	100	98.8				0.986
SM 5310 B-00	Organic Carbon	96.4	94.5	94.7				0.181

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2087978, 2087979, 2087984, 2087985, 2087986
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2088003, 2088004
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2088003, 2088004
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2087978, 2087979, 2087984, 2087985, 2087986
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2087978, 2087979, 2087984, 2087985, 2087986
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2087980, 2087981, 2087987, 2087988, 2087989

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2087980, 2087981, 2087987, 2087988, 2087989
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2087980, 2087981, 2087987, 2087988, 2087989
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2087980, 2087981, 2087987, 2087988, 2087989
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2087982, 2087983, 2087990, 2087991, 2087992
SM 2120 B / E31780	True Color measured at 450 nm	2087978, 2087979, 2087984, 2087985, 2087986
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2087978, 2087979, 2087984, 2087985, 2087986
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2087978, 2087979, 2087984, 2087985, 2087986
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2087978, 2087979, 2087984, 2087985, 2087986
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2087978, 2087979, 2087984, 2087985, 2087986
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2087980, 2087981, 2087987, 2087988, 2087989

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	05/22/2019			05/22/2019 14:38	Sima Feizi	2087978, 2087979, 2087984, 2087985, 2087986
EPA 200.7 Rev. 4.4	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/24/2019 18:16	Betina Topolski	2088003
	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/24/2019 18:23	Betina Topolski	2088004
EPA 200.8 Rev. 5.4	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/29/2019 23:26	Martin Acosta	2088003
	05/22/2019	05/23/2019 14:00	Elliott D. Healy	05/29/2019 23:35	Martin Acosta	2088004
EPA 300.0 Rev. 2.1	05/22/2019			05/25/2019 01:01	Lipi Saha	2087979
	05/22/2019			05/25/2019 03:26	Lipi Saha	2087978
	05/22/2019			05/25/2019 03:38	Lipi Saha	2087984
	05/22/2019			05/25/2019 03:50	Lipi Saha	2087985
	05/22/2019			05/25/2019 04:02	Lipi Saha	2087986
EPA 350.1 Rev. 2.0	05/22/2019			05/24/2019 13:01	Ping Hua	2087980
	05/22/2019			05/24/2019 13:07	Ping Hua	2087987
	05/22/2019			05/24/2019 13:17	Ping Hua	2087981
	05/22/2019			05/24/2019 13:19	Ping Hua	2087988
	05/22/2019			05/24/2019 13:20	Ping Hua	2087989
EPA 351.2 Rev. 2.0	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:27	Joseph Suarez	2087980
	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:29	Joseph Suarez	2087981
	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:33	Joseph Suarez	2087987
	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:41	Joseph Suarez	2087988
	05/22/2019	05/30/2019 18:00	Adrian Shelby	06/03/2019 10:43	Joseph Suarez	2087989
EPA 353.2 Rev. 2.0	05/22/2019			05/24/2019 10:48	Beverly Y. Sanders	2087980
	05/22/2019			05/24/2019 10:54	Beverly Y. Sanders	2087981
	05/22/2019			05/24/2019 10:55	Beverly Y. Sanders	2087987
	05/22/2019			05/24/2019 10:56	Beverly Y. Sanders	2087988
	05/22/2019			05/24/2019 10:58	Beverly Y. Sanders	2087989
EPA 365.1 Rev. 2.0	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 11:45	Rosalyn Ballman	2087989
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 15:18	Rosalyn Ballman	2087980
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 15:43	Rosalyn Ballman	2087981
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 15:44	Rosalyn Ballman	2087987
	05/22/2019	05/30/2019 10:32	Joseph Suarez	05/31/2019 15:45	Rosalyn Ballman	2087988
EPA 365.1 Rev. 2.0 dissolved	05/22/2019			05/22/2019 11:45	Jhamieka S. Greenwood	2087991
	05/22/2019			05/22/2019 11:50	Jhamieka S. Greenwood	2087982, 2087983
	05/22/2019			05/22/2019 11:56	Jhamieka S. Greenwood	2087990, 2087992
SM 2120 B	05/22/2019			05/22/2019 15:41	Madeline Funaro	2087978
	05/22/2019			05/22/2019 15:42	Madeline Funaro	2087979
	05/22/2019			05/22/2019 15:43	Madeline Funaro	2087984
	05/22/2019			05/22/2019 15:45	Madeline Funaro	2087985
	05/22/2019			05/22/2019 15:46	Madeline Funaro	2087986
SM 2320 B-97	05/22/2019			06/02/2019 02:29	Dale L. Simmons	2087978

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	05/22/2019			06/02/2019 02:39	Dale L. Simmons	2087979
	05/22/2019			06/02/2019 02:48	Dale L. Simmons	2087984
	05/22/2019			06/02/2019 03:41	Dale L. Simmons	2087985
	05/22/2019			06/02/2019 03:50	Dale L. Simmons	2087986
SM 2540 C-97	05/22/2019			05/23/2019 16:02	Yijie Li	2087978, 2087979, 2087984, 2087985, 2087986
SM 2540 D-97	05/22/2019			05/23/2019 16:02	Yijie Li	2087978, 2087979, 2087984, 2087985, 2087986
SM 4500 F-C-97	05/22/2019			05/31/2019 09:53	Dale L. Simmons	2087978
	05/22/2019			05/31/2019 10:05	Dale L. Simmons	2087979
	05/22/2019			05/31/2019 10:18	Dale L. Simmons	2087984
	05/22/2019			05/31/2019 10:31	Dale L. Simmons	2087985
	05/22/2019			05/31/2019 10:43	Dale L. Simmons	2087986
SM 5310 B-00	05/22/2019			05/23/2019 05:04	Julia Storbeck	2087987
	05/22/2019			05/23/2019 07:35	Julia Storbeck	2087980
	05/22/2019			05/23/2019 07:51	Julia Storbeck	2087981
	05/22/2019			05/23/2019 08:04	Julia Storbeck	2087988
	05/22/2019			05/23/2019 08:19	Julia Storbeck	2087989