

Chemical Analysis Report

NE-DIST-2018-08-15-01

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

Event Description: **LSJR Southwest 2**
Request ID: **RQ-2018-08-13-17**
Customer: **NE-DIST**
Project ID: **SMP**

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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Colin Wright, Program Administrator

Date Certified: 31-AUG-2018 16:53

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored 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 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: PETERS CREEK CULVERT SR 315

Collection Date/Time: 08/14/2018 10:10

Field ID: 20030388

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017198	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P350170	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P350418	
		Sulfate	2.9		mg SO4/L	P350420	
		Color (true)	230		PCU	P350178	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	66		mg/L	P350771	
	SM 2540 D-97	TSS	3	I	mg/L	P350759	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350416	
2017200	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P350597	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P350523	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P350506	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P350403	
2017202	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P350173	
2017220	EPA 200.7 Rev. 4.4	Calcium	3.04		mg/L	P350334	
		Iron	780		ug/L	P350334	
		Magnesium	0.63		mg/L	P350334	
		Potassium	0.30	U	mg/L	P350334	
		Sodium	5.0		mg/L	P350334	
		Zinc	5.0	U	ug/L	P350334	
	EPA 200.8 Rev. 5.4	Arsenic	0.38		ug/L	P350334	
		Cadmium	0.020	U	ug/L	P350334	
		Chromium	0.70	I	ug/L	P350334	
		Copper	0.20	U	ug/L	P350334	
		Lead	0.38		ug/L	P350334	
		Nickel	0.41	I	ug/L	P350334	
		Silver	0.010	U	ug/L	P350334	

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: PETERS CREEK @ SR 16

Collection Date/Time: 08/14/2018 10:45

Field ID: 20030403

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes	
2017199	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P350170		
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P350418		
		Sulfate	2.6		mg SO4/L	P350420		
		Color (true)	220		PCU	P350178		
	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P350415		
	SM 2540 C-97	TDS	64		mg/L	P350771		
	SM 2540 D-97	TSS	3	I	mg/L	P350759		
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350416		
2017201	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P350521		
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P350277		
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P350523		
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P350506		
	SM 5310 B-00	Organic Carbon	18		mg C/L	P350403		
2017203	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P350173		
2017221	EPA 200.7 Rev. 4.4	Calcium	4.32		mg/L	P350334		
		Iron	650		ug/L	P350334		
		Magnesium	0.76		mg/L	P350334		
		Potassium	0.30	U	mg/L	P350334		
		Sodium	4.6		mg/L	P350334		
		Zinc	5.0	U	ug/L	P350334		
	EPA 200.8 Rev. 5.4	Arsenic	0.32		ug/L	P350334		
		Cadmium	0.020	U	ug/L	P350334		
		Chromium	0.44	I	ug/L	P350334		
		Copper	0.20	U	ug/L	P350334		
		Lead	0.35		ug/L	P350334		
		Nickel	0.30	I	ug/L	P350334		
		Silver	0.010	U	ug/L	P350334		

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 AT BRIT PLACE

Collection Date/Time: 08/14/2018 11:45

Field ID: G2NE1140

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017192	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P350169	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P350418	
		Sulfate	8.3		mg SO4/L	P350420	
	SM 2120 B	Color (true)	320		PCU	P350178	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	69		mg/L	P350771	
	SM 2540 D-97	TSS	2	I	mg/L	P350759	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P350416	
2017194	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P350597	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P350523	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P350506	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P350403	
2017196	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.29		mg P/L	P350173	

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: MILL CR @ SR 16

Collection Date/Time: 08/14/2018 09:00

Field ID: 20030474

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017193	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P350169	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P350418	
		Sulfate	50		mg SO4/L	P350420	
	SM 2120 B	Color (true)	99		PCU	P350178	
	SM 2320 B-97	Total Alkalinity	99		mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	315		mg/L	P350771	
	SM 2540 D-97	TSS	5	I	mg/L	P350759	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P350416	
2017195	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P350597	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P350523	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P350506	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P350403	
2017197	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.21		mg P/L	P350173	

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: FIELD BLANK

Collection Date/Time: 08/14/2018 11:40

Field ID: BLANK 08142018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017204	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P350170	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P350568	
		Sulfate	0.20	U	mg SO4/L	P350570	
		Color (true)	2.5	U	PCU	P350178	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P350415	
	SM 2540 C-97	TDS	15	U	mg/L	P350769	
	SM 2540 D-97	TSS	2	U	mg/L	P350757	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P350416	
2017205	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P350521	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P350277	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P350523	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P350710	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P350403	
2017206	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350173	
2017222	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P350334	
		Iron	30	U	ug/L	P350334	
		Magnesium	0.040	U	mg/L	P350334	
		Potassium	0.30	U	mg/L	P350334	
		Sodium	0.50	U	mg/L	P350334	
		Zinc	5.0	U	ug/L	P350334	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P350334	
		Cadmium	0.020	U	ug/L	P350334	
		Chromium	0.40	U	ug/L	P350334	
		Copper	0.20	U	ug/L	P350334	
		Lead	0.050	U	ug/L	P350334	
		Nickel	0.20	U	ug/L	P350334	
		Silver	0.010	U	ug/L	P350334	

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: P350169

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350170

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350334

Component	Result	Code	Units
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: P350334

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350418

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350420

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350597

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350523

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350506

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350710

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350173

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

Reference Method: SM 2120 B
Batch ID: P350178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P350415

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

Reference Method: SM 2540 C-97
Batch ID: P350769

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P350771

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350757

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350759

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350403

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: P350334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	97.2		P	85 - 115
Zinc	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	98.6		P	85 - 115
Copper	97.9		P	85 - 115
Lead	103		P	85 - 115
Nickel	100		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350420

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350597

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350523

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350506

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350173

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

Reference Method: SM 2120 B
Batch ID: P350178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P350403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017135	Calcium	106		P	80 - 120
2017135	Iron	105		P	80 - 120
2017135	Magnesium	104		P	80 - 120
2017135	Potassium	101		P	80 - 120
2017135	Sodium	101		P	80 - 120
2017135	Zinc	109		P	80 - 120
2017254	Calcium	103		P	80 - 120
2017254	Iron	107	105	P/P	80 - 120
2017254	Magnesium	102		P	80 - 120
2017254	Potassium	102	100	P/P	80 - 120
2017254	Sodium	97.9		P	80 - 120
2017254	Zinc	101	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017135	Arsenic	105		P	80 - 120
2017135	Cadmium	104		P	80 - 120
2017135	Chromium	98.6		P	80 - 120
2017135	Copper	98.9		P	80 - 120
2017135	Lead	106		P	80 - 120
2017135	Nickel	99.3		P	80 - 120
2017135	Silver	100		P	80 - 120
2017254	Arsenic	105	105	P/P	80 - 120
2017254	Cadmium	106	105	P/P	80 - 120
2017254	Chromium	99.1	101	P/P	80 - 120
2017254	Copper	99.2	100	P/P	80 - 120
2017254	Lead	106	106	P/P	80 - 120
2017254	Nickel	100	102	P/P	80 - 120
2017254	Silver	101	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017063	Chloride	99.3		P	90 - 110
2017166	Chloride	91.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017063	Sulfate	98.9		P	90 - 110
2017166	Sulfate	91.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017236	Chloride	95.4		P	90 - 110
2017336	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017236	Sulfate	94.3		P	90 - 110
2017336	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017200	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017238	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017168	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017185	NO2NO3-N	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017185	Total-P	98.5	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2018510	Total-P	97.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017203	O-Phosphate-P	96.3	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P350416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017137	Fluoride	97.5	96.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P350403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017194	Organic Carbon	102		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017138	Turbidity	1.00	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017198	Turbidity	6.84	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017254	Calcium	1.41	Spike	P	0 - 20
2017254	Iron	1.23	Spike	P	0 - 20
2017254	Magnesium	1.58	Spike	P	0 - 20
2017254	Potassium	1.32	Spike	P	0 - 20
2017254	Sodium	1.44	Spike	P	0 - 20
2017254	Zinc	0.519	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017254	Arsenic	0.329	Spike	P	0 - 20
2017254	Cadmium	0.986	Spike	P	0 - 20
2017254	Chromium	1.52	Spike	P	0 - 20
2017254	Copper	1.10	Spike	P	0 - 20
2017254	Lead	0.187	Spike	P	0 - 20
2017254	Nickel	1.09	Spike	P	0 - 20
2017254	Silver	0.0591	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017063	Chloride	1.77	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017063	Sulfate	1.82	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017236	Chloride	0.897	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017236	Sulfate	0.520	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017200	Ammonia-N	0.533	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017238	Kjeldahl Nitrogen	3.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017168	Kjeldahl Nitrogen	0.534	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017185	NO2NO3-N	1.84	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017185	Total-P	0.763	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2018510	Total-P	0.348	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017203	O-Phosphate-P	0.174	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P350178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017189	Color (true)	3.88	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P350415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017137	Total Alkalinity	1.45	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P350769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017019	TDS	6.87	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P350771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017166	TDS	8.25	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P350416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017137	Fluoride	0.969	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P350403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017194	Organic Carbon	1.55	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 300.0 Rev. 2.1

Run ID: A85845

Included Lab Sample IDs: 2017192, 2017193, 2017198, 2017199

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	96.3	P/P	90 - 110
Chloride	96.3	98.7	P/P	90 - 110
Sulfate	100	95.3	P/P	90 - 110
Sulfate	95.3	97.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85898

Included Lab Sample IDs: 2017192, 2017193, 2017198, 2017199, 2017204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	100	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85899

Included Lab Sample IDs: 2017196, 2017197, 2017202, 2017203, 2017206

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.0	P/P	90 - 110
O-Phosphate-P	99.3	99.3	P/P	90 - 110
O-Phosphate-P	99.4	99.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A85900

Included Lab Sample IDs: 2017192, 2017193, 2017198, 2017199, 2017204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	98.4	P/P	90 - 115
Color (true)	99.6	99.4	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A85991

Included Lab Sample IDs: 2017192, 2017193, 2017198, 2017199, 2017204

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

Reference Method: SM 4500 F-C-97

Run ID: A85991

Included Lab Sample IDs: 2017192, 2017193, 2017198, 2017199, 2017204

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85992

Included Lab Sample IDs: 2017194, 2017195, 2017200, 2017201, 2017205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.4	P/P	90 - 110
Organic Carbon	96.4	96.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86009

Included Lab Sample IDs: 2017220, 2017221, 2017222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	95 - 105
Calcium	103	101	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Iron	105	104	P/P	95 - 105
Magnesium	104	102	P/P	90 - 110
Magnesium	105	104	P/P	95 - 105
Potassium	102	101	P/P	90 - 110
Potassium	103	102	P/P	95 - 105
Sodium	101	97.4	P/P	90 - 110
Sodium	102	101	P/P	95 - 105
Zinc	102	103	P/P	95 - 105
Zinc	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86017

Included Lab Sample IDs: 2017201, 2017205

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86031

Included Lab Sample IDs: 2017194, 2017195, 2017200, 2017201, 2017205

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86032

Included Lab Sample IDs: 2017194, 2017195, 2017200, 2017201, 2017205

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86049

Included Lab Sample IDs: 2017204

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86050

Included Lab Sample IDs: 2017220, 2017221, 2017222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	96.7	98.2	P/P	90 - 110
Arsenic	98.2	98.9	P/P	90 - 110
Cadmium	96.5	98.4	P/P	90 - 110
Cadmium	98.4	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86050

Included Lab Sample IDs: 2017220, 2017221, 2017222

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	94.7	96.1	P/P	90 - 110
Chromium	96.1	96.2	P/P	90 - 110
Copper	96.8	97.5	P/P	90 - 110
Copper	97.5	97.8	P/P	90 - 110
Lead	103	105	P/P	90 - 110
Lead	105	104	P/P	90 - 110
Nickel	95.9	97.0	P/P	90 - 110
Nickel	97.0	97.9	P/P	90 - 110
Silver	97.1	98.8	P/P	90 - 110
Silver	98.8	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86055

Included Lab Sample IDs: 2017194, 2017195

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86058

Included Lab Sample IDs: 2017200, 2017201

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86079

Included Lab Sample IDs: 2017194, 2017195, 2017200

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86122

Included Lab Sample IDs: 2017205

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	MS
			LCS	SMP	MS		
EPA 180.1 Rev. 2.0	Turbidity					1.00	
	Turbidity					6.84	
EPA 200.7 Rev. 4.4	Calcium	100	106	103			1.41
	Iron	104	105	107	105		1.23
	Magnesium	102	104	102			1.58
	Potassium	101	101	102	100		1.32
	Sodium	97.2	101	97.9			1.44
	Zinc	99.8	109	101	102		0.519
EPA 200.8 Rev. 5.4	Arsenic	101	105	105	105		0.329
	Cadmium	104	104	106	105		0.986
	Chromium	98.6	98.6	99.1	101		1.52
	Copper	97.9	98.9	99.2	100		1.10
	Lead	103	106	106	106		0.187
	Nickel	100	99.3	100	102		1.09
	Silver	101	100	101	101		0.0591
EPA 300.0 Rev. 2.1	Chloride	98.7	99.3	91.7		1.77	
	Chloride	104	95.4	101		0.897	
	Sulfate	97.5	98.9	91.6		1.82	
	Sulfate	103	94.3	101		0.520	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	101			0.533
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	102			3.32
	Kjeldahl Nitrogen	106	105	106			0.534
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	103			1.84
EPA 365.1 Rev. 2.0	Total-P	98.8	98.5	97.6			0.763
	Total-P	97.9	97.8	98.2			0.348
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.3	96.5			0.174
SM 2120 B	Color (true)	99.2				3.88	
SM 2320 B-97	Total Alkalinity	102				1.45	
SM 2540 C-97	TDS					6.87	
	TDS					8.25	
SM 4500 F-C-97	Fluoride	97.7	97.5	96.4			0.969
SM 5310 B-00	Organic Carbon	95.2	102				1.55

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2017192, 2017193, 2017198, 2017199, 2017204
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2017220, 2017221, 2017222
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2017220, 2017221, 2017222
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2017192, 2017193, 2017198, 2017199, 2017204
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2017192, 2017193, 2017198, 2017199, 2017204
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2017194, 2017195, 2017200, 2017201, 2017205
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2017194, 2017195, 2017200, 2017201, 2017205
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2017194, 2017195, 2017200, 2017201, 2017205
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2017194, 2017195, 2017200, 2017201, 2017205

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780 SM 2120 B / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L True Color measured at 450 nm	2017196, 2017197, 2017202, 2017203, 2017206 2017192, 2017193, 2017198, 2017199, 2017204
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2017192, 2017193, 2017198, 2017199, 2017204
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2017192, 2017193, 2017198, 2017199, 2017204
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2017192, 2017193, 2017198, 2017199, 2017204
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2017192, 2017193, 2017198, 2017199, 2017204
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2017194, 2017195, 2017200, 2017201, 2017205

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	08/15/2018			08/15/2018 16:37	William L. Brown IV	2017192, 2017193, 2017198, 2017199, 2017204
EPA 200.7 Rev. 4.4	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/20/2018 11:02	Betina Topolski	2017222
	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/20/2018 12:15	Betina Topolski	2017220
	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/20/2018 12:22	Betina Topolski	2017221
EPA 200.8 Rev. 5.4	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/21/2018 19:56	Allison Taylor	2017222
	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/21/2018 21:42	Allison Taylor	2017220
	08/15/2018	08/16/2018 13:15	Elliott D. Healy	08/21/2018 21:51	Allison Taylor	2017221
EPA 300.0 Rev. 2.1	08/15/2018			08/17/2018 01:43	Lipi Saha	2017192
	08/15/2018			08/17/2018 02:19	Lipi Saha	2017193
	08/15/2018			08/17/2018 02:31	Lipi Saha	2017198
	08/15/2018			08/17/2018 02:43	Lipi Saha	2017199
	08/15/2018			08/20/2018 20:02	Lipi Saha	2017204
EPA 350.1 Rev. 2.0	08/15/2018			08/20/2018 12:21	Ping Hua	2017195
	08/15/2018			08/20/2018 12:25	Ping Hua	2017194
	08/15/2018			08/20/2018 12:27	Ping Hua	2017200
	08/15/2018			08/20/2018 12:28	Ping Hua	2017201
	08/15/2018			08/20/2018 12:31	Ping Hua	2017205
EPA 351.2 Rev. 2.0	08/15/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 14:11	Joseph Suarez	2017201
	08/15/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 14:13	Joseph Suarez	2017205
	08/15/2018	08/22/2018 10:30	Adrian Shelby	08/23/2018 10:35	Joseph Suarez	2017194
	08/15/2018	08/22/2018 10:30	Adrian Shelby	08/23/2018 10:37	Joseph Suarez	2017195
	08/15/2018	08/22/2018 10:30	Adrian Shelby	08/23/2018 10:38	Joseph Suarez	2017200
EPA 353.2 Rev. 2.0	08/15/2018			08/21/2018 11:57	Lauren Bottorf	2017205
	08/15/2018			08/21/2018 12:00	Lauren Bottorf	2017194
	08/15/2018			08/21/2018 12:01	Lauren Bottorf	2017195
	08/15/2018			08/21/2018 12:02	Lauren Bottorf	2017200
	08/15/2018			08/21/2018 12:04	Lauren Bottorf	2017201
EPA 365.1 Rev. 2.0	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 10:47	Beverly Y. Sanders	2017200
	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 10:48	Beverly Y. Sanders	2017201
	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:37	Beverly Y. Sanders	2017194
	08/15/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:38	Beverly Y. Sanders	2017195
	08/15/2018	08/24/2018 12:31	Sima Feizi	08/27/2018 11:46	Beverly Y. Sanders	2017205
EPA 365.1 Rev. 2.0 dissolved	08/15/2018			08/15/2018 16:33	Julia Storbeck	2017203
	08/15/2018			08/15/2018 16:53	Julia Storbeck	2017206
	08/15/2018			08/15/2018 17:21	Julia Storbeck	2017202
	08/15/2018			08/15/2018 17:24	Julia Storbeck	2017196
	08/15/2018			08/15/2018 17:25	Julia Storbeck	2017197
SM 2120 B	08/15/2018			08/15/2018 17:03	Tanya Welborn	2017193
	08/15/2018			08/15/2018 17:05	Tanya Welborn	2017204

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	08/15/2018			08/15/2018 17:29	Tanya Welborn	2017192
	08/15/2018			08/15/2018 17:30	Tanya Welborn	2017198
	08/15/2018			08/15/2018 17:31	Tanya Welborn	2017199
SM 2320 B-97	08/15/2018			08/17/2018 02:15	Dale L. Simmons	2017192
	08/15/2018			08/17/2018 02:25	Dale L. Simmons	2017193
	08/15/2018			08/17/2018 02:35	Dale L. Simmons	2017198
	08/15/2018			08/17/2018 02:46	Dale L. Simmons	2017199
	08/15/2018			08/17/2018 03:00	Dale L. Simmons	2017204
SM 2540 C-97	08/15/2018			08/17/2018 15:46	Yijie Li	2017192, 2017193, 2017198, 2017199, 2017204
SM 2540 D-97	08/15/2018			08/17/2018 15:46	Yijie Li	2017192, 2017193, 2017198, 2017199, 2017204
SM 4500 F-C-97	08/15/2018			08/17/2018 02:15	Dale L. Simmons	2017192
	08/15/2018			08/17/2018 02:25	Dale L. Simmons	2017193
	08/15/2018			08/17/2018 02:35	Dale L. Simmons	2017198
	08/15/2018			08/17/2018 02:46	Dale L. Simmons	2017199
	08/15/2018			08/17/2018 03:00	Dale L. Simmons	2017204
SM 5310 B-00	08/15/2018			08/18/2018 08:23	Megan Treadwell	2017194
	08/15/2018			08/18/2018 09:48	Megan Treadwell	2017195
	08/15/2018			08/18/2018 10:01	Megan Treadwell	2017200
	08/15/2018			08/18/2018 10:15	Megan Treadwell	2017201
	08/15/2018			08/18/2018 10:28	Megan Treadwell	2017205