

Chemical Analysis Report

NE-DIST-2019-01-16-02

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

Event Description: **LSJR South West Boat**

Request ID: **RQ-2019-01-14-25**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 04-FEB-2019 14:21



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: BLACK CR. @ RR BRIDGE BELOW MILLLOG
CR**

Collection Date/Time: 01/15/2019 09:55

Field ID: 20030204

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054650	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P357373	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P357605	
		Sulfate	4.8		mg SO4/L	P357607	
	SM 2120 B	Color (true)	240		PCU	P357370	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	86		mg/L	P357769	
	SM 2540 D-97	TSS	2	I	mg/L	P357865	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P357664	
2054653	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P357493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P357527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P357562	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P357538	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P357495	
2054656	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P357377	

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 LOG CR DOWNSTREAM OF TEST SITE

Collection Date/Time: 01/15/2019 09:40

Field ID: 20030304

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054651	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P357373	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P357605	
		Sulfate	7.6		mg SO4/L	P357607	
	SM 2120 B	Color (true)	170		PCU	P357371	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	113		mg/L	P357769	
	SM 2540 D-97	TSS	2	U	mg/L	P357865	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P357664	
2054654	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P357493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P357527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P357562	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P357538	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P357496	
2054657	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P357377	

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: LITTLE BLACK CREEK 200M ABOVE MOUTH Collection Date/Time: 01/15/2019 10:15

Field ID: G2NE1184

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054644	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P357373	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P357605	
		Sulfate	7.7	A	mg SO4/L	P357607	
	SM 2120 B	Color (true)	170		PCU	P357370	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	96		mg/L	P357768	
	SM 2540 D-97	TSS	2	U	mg/L	P357864	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P357664	
2054646	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P357492	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P357437	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P357562	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P357538	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P357495	
2054648	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P357377	
2054669	EPA 200.7 Rev. 4.4	Barium	15.3		ug/L	P357375	
		Calcium	10.5		mg/L	P357375	
		Iron	480		ug/L	P357375	
		Magnesium	2.29		mg/L	P357375	
		Potassium	1.1	I	mg/L	P357375	
		Sodium	11.7		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	267		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.46		ug/L	P357375	
		Boron**	20.9		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.55	I	ug/L	P357375	
		Copper	0.57	I	ug/L	P357789	
		Lead	0.31	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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: GROG BRANCH 150M ABOVE MOUTH

Collection Date/Time: 01/15/2019 11:15

Field ID: G2NE1185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054645	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P357373	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P357605	
		Sulfate	4.4		mg SO4/L	P357607	
		Color (true)	190		PCU	P357370	
	SM 2320 B-97	Total Alkalinity	18		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	86		mg/L	P357768	
	SM 2540 D-97	TSS	2	I	mg/L	P357864	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P357664	
2054647	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P357492	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P357527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P357562	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P357538	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P357495	
2054649	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P357377	
2054670	EPA 200.7 Rev. 4.4	Barium	16.3		ug/L	P357375	
		Calcium	10.3		mg/L	P357375	
		Iron	780		ug/L	P357375	
		Magnesium	2.40		mg/L	P357375	
		Potassium	0.48	I	mg/L	P357375	
		Sodium	7.0		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	319		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.49		ug/L	P357375	
		Boron**	14.9		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.64	I	ug/L	P357375	
		Copper	0.40	U	ug/L	P357375	
		Lead	0.40	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

Ref. Method and Comment:

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

Sample Location: SOUTH FORK BLACK CREEK UPSTREAM OF NORTH FORK BLACK CR **Collection Date/Time: 01/15/2019 11:35**

Field ID: G2NE1127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054652	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P357373	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P357605	
		Sulfate	3.0		mg SO4/L	P357607	
		Color (true)	170		PCU	P357371	
	SM 2320 B-97	Total Alkalinity	6.6		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	70		mg/L	P357769	
	SM 2540 D-97	TSS	2	I	mg/L	P357865	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P357664	
2054655	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P357493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P357527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P357563	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P357538	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P357496	
2054658	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.079		mg P/L	P357377	

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: P357373

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

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: P357375

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 200.8 Rev. 5.4
Batch ID: P357789

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357605

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357607

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: P357492

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357493

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357527

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357562

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357563

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357538

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357377

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

Reference Method: SM 2120 B
Batch ID: P357370

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P357371

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357660

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

Reference Method: SM 2540 C-97
Batch ID: P357768

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P357769

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357864

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357865

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357495

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

Reference Method: SM 5310 B-00
Batch ID: P357496

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: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	107		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	105		P	85 - 115
Sodium	102		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.1		P	85 - 115
Antimony	97.9		P	85 - 115
Arsenic	103		P	85 - 115
Boron	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	104		P	85 - 115
Copper	101		P	85 - 115
Lead	98.5		P	85 - 115
Nickel	103		P	85 - 115
Selenium	99.7		P	85 - 115
Silver	101		P	85 - 115
Thallium	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357605

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357607

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357492

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357493

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357527

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357562

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357563

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357538

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357377

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

Reference Method: SM 2120 B
Batch ID: P357370

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

Reference Method: SM 2120 B
Batch ID: P357371

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P357660

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

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P357496

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Barium	102		P	80 - 120
2054535	Calcium	105		P	80 - 120
2054535	Iron	108		P	80 - 120
2054535	Magnesium	110		P	80 - 120
2054535	Potassium	104		P	80 - 120
2054535	Sodium	102		P	80 - 120
2054535	Zinc	104		P	80 - 120
2054557	Barium	105	106	P/P	80 - 120
2054557	Calcium	103	104	P/P	80 - 120
2054557	Iron	107	108	P/P	80 - 120
2054557	Magnesium	110	110	P/P	80 - 120
2054557	Potassium	107	107	P/P	80 - 120
2054557	Sodium	99.9		P	80 - 120
2054557	Zinc	104	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Aluminum	97.7		P	80 - 120
2054535	Antimony	102		P	80 - 120
2054535	Arsenic	108		P	80 - 120
2054535	Boron	101		P	80 - 120
2054535	Cadmium	106		P	80 - 120
2054535	Chromium	103		P	80 - 120
2054535	Copper	101		P	80 - 120
2054535	Lead	99.8		P	80 - 120
2054535	Nickel	103		P	80 - 120
2054535	Selenium	106		P	80 - 120
2054535	Silver	99.4		P	80 - 120
2054535	Thallium	102		P	80 - 120
2054557	Aluminum	96.9	98.0	P/P	80 - 120
2054557	Antimony	101	101	P/P	80 - 120
2054557	Arsenic	105	107	P/P	80 - 120
2054557	Boron	98.3	99.4	P/P	80 - 120
2054557	Cadmium	106	106	P/P	80 - 120
2054557	Chromium	104	104	P/P	80 - 120
2054557	Copper	101	102	P/P	80 - 120
2054557	Lead	99.4	100	P/P	80 - 120
2054557	Nickel	102	104	P/P	80 - 120
2054557	Selenium	104	106	P/P	80 - 120
2054557	Silver	99.2	99.4	P/P	80 - 120
2054557	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054090	Copper	100	102	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054644	Chloride	98.1		P	90 - 110
2054860	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357607

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054644	Sulfate	96.4		P	90 - 110
2054860	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054615	Ammonia-N	97.9	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054744	Ammonia-N	97.5	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054611	Kjeldahl Nitrogen	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054655	Kjeldahl Nitrogen	99.8	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054612	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054655	NO2NO3-N	96.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054677	Total-P	102	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054658	O-Phosphate-P	94.9	95.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054513	Fluoride	97.8	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054508	Organic Carbon	100	98.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P357496

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054654	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054609	Turbidity	4.41	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Barium	1.37	Spike	P	0 - 20
2054557	Calcium	0.627	Spike	P	0 - 20
2054557	Iron	0.637	Spike	P	0 - 20
2054557	Magnesium	0.113	Spike	P	0 - 20
2054557	Potassium	0.153	Spike	P	0 - 20
2054557	Sodium	0.0975	Spike	P	0 - 20
2054557	Zinc	0.937	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Aluminum	0.813	Spike	P	0 - 20
2054557	Antimony	0.627	Spike	P	0 - 20
2054557	Arsenic	1.24	Spike	P	0 - 20
2054557	Boron	0.980	Spike	P	0 - 20
2054557	Cadmium	0.240	Spike	P	0 - 20
2054557	Chromium	0.228	Spike	P	0 - 20
2054557	Copper	1.29	Spike	P	0 - 20
2054557	Lead	0.843	Spike	P	0 - 20
2054557	Nickel	1.91	Spike	P	0 - 20
2054557	Selenium	2.17	Spike	P	0 - 20
2054557	Silver	0.224	Spike	P	0 - 20
2054557	Thallium	1.13	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054090	Copper	1.74	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054644	Chloride	1.60	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054644	Sulfate	1.26	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054615	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054744	Ammonia-N	1.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054611	Kjeldahl Nitrogen	0.192	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054655	Kjeldahl Nitrogen	2.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054612	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054655	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357538

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054677	Total-P	0.814	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054658	O-Phosphate-P	0.460	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054607	Color (true)	3.33	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054676	Color (true)	0.446	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Total Alkalinity	0.0932	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054583	TDS	0.851	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P357769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054676	TDS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P357664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054508	Organic Carbon	0.942	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P357496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054654	Organic Carbon	0.227	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A88852

Included Lab Sample IDs: 2054644, 2054645, 2054650, 2054651, 2054652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88853

Included Lab Sample IDs: 2054644, 2054645, 2054650, 2054651, 2054652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88854

Included Lab Sample IDs: 2054648, 2054649, 2054656, 2054657, 2054658

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	98.6	P/P	90 - 110
O-Phosphate-P	99.8	99.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88887

Included Lab Sample IDs: 2054669, 2054670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	103	P/P	90 - 110
Calcium	102	103	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	98.8	99.6	P/P	90 - 110
Sodium	98.9	99.6	P/P	90 - 110
Zinc	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88889

Included Lab Sample IDs: 2054646, 2054647, 2054653, 2054654, 2054655

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

Reference Method: SM 5310 B-00

Run ID: A88890

Included Lab Sample IDs: 2054646, 2054647, 2054653, 2054654, 2054655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110
Organic Carbon	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88908

Included Lab Sample IDs: 2054646

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.2	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88910

Included Lab Sample IDs: 2054646, 2054647, 2054653, 2054654, 2054655

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88931

Included Lab Sample IDs: 2054644, 2054645, 2054650, 2054651, 2054652

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88936

Included Lab Sample IDs: 2054647, 2054653, 2054654, 2054655

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88944

Included Lab Sample IDs: 2054647, 2054653, 2054654, 2054655

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

Reference Method: SM 2320 B-97

Run ID: A88947

Included Lab Sample IDs: 2054644, 2054645, 2054650, 2054651, 2054652

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

Reference Method: SM 4500 F-C-97

Run ID: A88947

Included Lab Sample IDs: 2054644, 2054645, 2054650, 2054651, 2054652

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	P/P	90 - 110
Fluoride	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88950

Included Lab Sample IDs: 2054646

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88956

Included Lab Sample IDs: 2054669, 2054670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.2	98.5	P/P	90 - 110
Antimony	104	104	P/P	90 - 110
Arsenic	105	105	P/P	90 - 110
Boron	97.1	98.3	P/P	90 - 110
Cadmium	104	104	P/P	90 - 110
Chromium	107	108	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Lead	102	103	P/P	90 - 110
Selenium	106	105	P/P	90 - 110
Silver	98.7	98.4	P/P	90 - 110
Thallium	92.7	93.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89030

Included Lab Sample IDs: 2054669

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89055

Included Lab Sample IDs: 2054669, 2054670

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	98.6	98.0	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						4.41	
EPA 200.7 Rev. 4.4	Barium	104	102	105	106			1.37
	Calcium	107	105	103	104			0.627
	Iron	107	108	107	108			0.637
	Magnesium	110	110	110	110			0.113
	Potassium	105	104	107	107			0.153
	Sodium	102	102	99.9				0.0975
	Zinc	102	104	104	105			0.937
EPA 200.8 Rev. 5.4	Aluminum	99.1	97.7	96.9	98.0			0.813
	Antimony	97.9	102	101	101			0.627
	Arsenic	103	108	105	107			1.24
	Boron	103	101	98.3	99.4			0.980
	Cadmium	103	106	106	106			0.240
	Chromium	104	103	104	104			0.228
	Copper	101	101	101	102			1.29
	Copper	98.1	100	102				1.74
	Lead	98.5	99.8	99.4	100			0.843
	Nickel	103	103	102	104			1.91
	Selenium	99.7	106	104	106			2.17
	Silver	101	99.4	99.2	99.4			0.224
	Thallium	97.0	102	102	103			1.13
EPA 300.0 Rev. 2.1	Chloride	100	98.1	99.5			1.60	
	Sulfate	98.7	96.4	97.6			1.26	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	97.9	99.2				1.26
	Ammonia-N	98.2	97.5	98.6				1.10
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	107	107				0.192
	Kjeldahl Nitrogen	104	99.8	103				2.18
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	100	100				0.0
	NO ₂ NO ₃ -N	98.5	96.4	96.4				0.0
EPA 365.1 Rev. 2.0	Total-P	100	102	103				0.814
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	94.9	95.7				0.460
SM 2120 B	Color (true)	99.2					3.33	
	Color (true)	101					0.446	
SM 2320 B-97	Total Alkalinity	102					0.0932	
SM 2540 C-97	TDS						0.851	
	TDS						3.64	
SM 4500 F-C-97	Fluoride	98.3	97.8	97.8				0.0
SM 5310 B-00	Organic Carbon	98.6	100	98.6				0.942
	Organic Carbon	99.6	103					0.227

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2054644, 2054645, 2054650, 2054651, 2054652
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2054669, 2054670
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2054669, 2054670
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2054644, 2054645, 2054650, 2054651, 2054652
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2054644, 2054645, 2054650, 2054651, 2054652

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2054646, 2054647, 2054653, 2054654, 2054655
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2054646, 2054647, 2054653, 2054654, 2054655
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2054646, 2054647, 2054653, 2054654, 2054655
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2054646, 2054647, 2054653, 2054654, 2054655
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2054648, 2054649, 2054656, 2054657, 2054658
SM 2120 B / E31780	True Color measured at 450 nm	2054644, 2054645, 2054650, 2054651, 2054652
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2054644, 2054645, 2054650, 2054651, 2054652
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2054644, 2054645, 2054650, 2054651, 2054652
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2054644, 2054645, 2054650, 2054651, 2054652
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2054644, 2054645, 2054650, 2054651, 2054652
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2054646, 2054647, 2054653, 2054654, 2054655

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	01/16/2019			01/16/2019 16:37	Megan Treadwell	2054644, 2054645, 2054650, 2054651, 2054652
EPA 200.7 Rev. 4.4	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 21:08	Betina Topolski	2054669
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 21:15	Betina Topolski	2054670
EPA 200.8 Rev. 5.4	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/23/2019 02:34	Allison Taylor	2054669
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/23/2019 02:44	Allison Taylor	2054670
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 14:03	Allison Taylor	2054669
	01/16/2019	01/16/2019 16:40	Elliott D. Healy	01/28/2019 14:10	Allison Taylor	2054670
	01/16/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 17:04	Allison Taylor	2054669
EPA 300.0 Rev. 2.1	01/16/2019			01/19/2019 00:48	Lipi Saha	2054644
	01/16/2019			01/19/2019 01:49	Lipi Saha	2054645
	01/16/2019			01/19/2019 02:02	Lipi Saha	2054650
	01/16/2019			01/19/2019 02:14	Lipi Saha	2054651
	01/16/2019			01/19/2019 02:52	Lipi Saha	2054652
EPA 350.1 Rev. 2.0	01/16/2019			01/17/2019 12:03	Ping Hua	2054646
	01/16/2019			01/17/2019 12:05	Ping Hua	2054647
	01/16/2019			01/17/2019 12:22	Ping Hua	2054653
	01/16/2019			01/17/2019 12:23	Ping Hua	2054654
	01/16/2019			01/17/2019 12:25	Ping Hua	2054655
EPA 351.2 Rev. 2.0	01/16/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 13:21	Joseph Suarez	2054646
	01/16/2019	01/18/2019 11:15	Adrian Shelby	01/22/2019 11:06	Joseph Suarez	2054647
	01/16/2019	01/18/2019 11:15	Adrian Shelby	01/22/2019 11:07	Joseph Suarez	2054653
	01/16/2019	01/18/2019 11:15	Adrian Shelby	01/22/2019 11:09	Joseph Suarez	2054654
	01/16/2019	01/18/2019 11:15	Adrian Shelby	01/22/2019 11:13	Joseph Suarez	2054655
EPA 353.2 Rev. 2.0	01/16/2019			01/18/2019 11:29	Beverly Y. Sanders	2054646
	01/16/2019			01/18/2019 11:30	Beverly Y. Sanders	2054647
	01/16/2019			01/18/2019 11:32	Beverly Y. Sanders	2054653
	01/16/2019			01/18/2019 11:33	Beverly Y. Sanders	2054654
	01/16/2019			01/18/2019 11:40	Beverly Y. Sanders	2054655
EPA 365.1 Rev. 2.0	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:24	Rosalyn Ballman	2054647
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:25	Rosalyn Ballman	2054653
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:26	Rosalyn Ballman	2054654
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 14:27	Rosalyn Ballman	2054655
	01/16/2019	01/18/2019 12:35	Sima Feizi	01/22/2019 17:42	Rosalyn Ballman	2054646
EPA 365.1 Rev. 2.0 dissolved	01/16/2019			01/16/2019 15:41	Jhamieka S. Greenwood	2054658
	01/16/2019			01/16/2019 16:04	Jhamieka S. Greenwood	2054657
	01/16/2019			01/16/2019 16:06	Jhamieka S. Greenwood	2054648
	01/16/2019			01/16/2019 16:08	Jhamieka S. Greenwood	2054649
	01/16/2019			01/16/2019 16:09	Jhamieka S. Greenwood	2054656
SM 2120 B	01/16/2019			01/16/2019 15:23	Chelsea Hernandez	2054644

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	01/16/2019			01/16/2019 15:24	Chelsea Hernandez	2054645
	01/16/2019			01/16/2019 15:26	Chelsea Hernandez	2054650
	01/16/2019			01/16/2019 15:27	Chelsea Hernandez	2054651
	01/16/2019			01/16/2019 15:28	Chelsea Hernandez	2054652
SM 2320 B-97	01/16/2019			01/22/2019 00:56	Dale L. Simmons	2054644
	01/16/2019			01/22/2019 01:08	Dale L. Simmons	2054645
	01/16/2019			01/22/2019 01:18	Dale L. Simmons	2054650
	01/16/2019			01/22/2019 02:11	Dale L. Simmons	2054651
SM 2540 C-97	01/16/2019			01/22/2019 02:22	Dale L. Simmons	2054652
	01/16/2019			01/17/2019 13:55	Yijie Li	2054644, 2054645, 2054650, 2054651, 2054652
SM 2540 D-97	01/16/2019			01/17/2019 13:55	Yijie Li	2054644, 2054645, 2054650, 2054651, 2054652
SM 4500 F-C-97	01/16/2019			01/22/2019 00:56	Dale L. Simmons	2054644
	01/16/2019			01/22/2019 01:08	Dale L. Simmons	2054645
	01/16/2019			01/22/2019 01:18	Dale L. Simmons	2054650
	01/16/2019			01/22/2019 02:11	Dale L. Simmons	2054651
SM 5310 B-00	01/16/2019			01/22/2019 02:22	Dale L. Simmons	2054652
	01/16/2019			01/17/2019 19:40	Megan Treadwell	2054646
	01/16/2019			01/17/2019 19:52	Megan Treadwell	2054647
	01/16/2019			01/17/2019 20:05	Megan Treadwell	2054653
	01/16/2019			01/17/2019 20:41	Megan Treadwell	2054654
	01/16/2019			01/17/2019 21:55	Megan Treadwell	2054655