Chemical Analysis Report

NW-DIST-2018-10-03-01

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

Event Description: **NW RUN**
Request ID: **RQ-2018-09-17-21**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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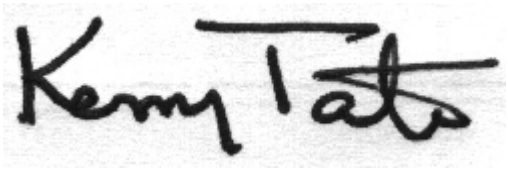
Date Certified: 31-OCT-2018 12:04



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: Moore Creek above Chamuckla Springs Road **Collection Date/Time: 10/02/2018 10:40**

Field ID: G4NW0355 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030703	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P352806	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P353036	
		Sulfate	0.60		mg SO4/L	P353038	
	SM 2120 B	Color (true)	27		PCU	P352753	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	35		mg/L	P353108	
	SM 2540 D-97	TSS	10		mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030708	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P353050	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P352933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P352955	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P352968	
2030713	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	

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: McCostill Mill Creek West Ebeneezer Rd **Collection Date/Time: 10/02/2018 11:00**

Field ID: G4NW0320 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030704	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P352806	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P353036	
		Sulfate	0.70		mg SO4/L	P353038	
	SM 2120 B	Color (true)	15		PCU	P352753	
	SM 2320 B-97	Total Alkalinity	0.93	I	mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	37		mg/L	P353108	
	SM 2540 D-97	TSS	2	I	mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030709	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P353050	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P352933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.8		mg N/L	P352955	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P352968	
2030714	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	

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: Big Escambia Creek downstream of Fannie Rd **Collection Date/Time: 10/02/2018 11:40**

Field ID: G4NW0421 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030705	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P352806	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P353036	
		Sulfate	0.96		mg SO4/L	P353038	
	SM 2120 B	Color (true)	66		PCU	P352754	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	32		mg/L	P353108	
	SM 2540 D-97	TSS	10	I	mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030710	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P353051	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P352933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P352955	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P352968	
2030715	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	

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: Wiggins Branch below Hwy 29 **Collection Date/Time: 10/02/2018 12:00**

Field ID: G4NW0163 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030706	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P352806	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P353255	
		Sulfate	0.90		mg SO4/L	P353256	
	SM 2120 B	Color (true)	59		PCU	P352754	
	SM 2320 B-97	Total Alkalinity	8.9		mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	37		mg/L	P353108	
	SM 2540 D-97	TSS	4	I	mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030711	EPA 350.1 Rev. 2.0	Ammonia-N	0.072		mg N/L	P353051	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P352933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P352956	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P352968	
2030716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	

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: Mitchell Creek upstream of HWY 29 **Collection Date/Time: 10/02/2018 12:25**

Field ID: G4NW0116 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030700	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P352805	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P353036	
		Sulfate	0.41	I	mg SO4/L	P353038	
	SM 2120 B	Color (true)	55		PCU	P352753	
	SM 2320 B-97	Total Alkalinity	7.5		mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	33		mg/L	P353108	
	SM 2540 D-97	TSS	5	I	mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030701	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P353050	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P352933	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.60		mg N/L	P352955	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P352968	
2030702	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	
2030736	EPA 200.7 Rev. 4.4	Calcium	0.51		mg/L	P352944	
		Iron	1.39E+03		ug/L	P352944	
		Magnesium	0.52		mg/L	P352944	
		Potassium	0.30	U	mg/L	P352944	
		Sodium	1.7	I	mg/L	P352944	
		Zinc	5.0	U	ug/L	P352944	
	EPA 200.8 Rev. 5.4	Arsenic	0.45		ug/L	P352944	
		Cadmium	0.020	U	ug/L	P352944	
		Chromium	0.58	I	ug/L	P352944	
		Copper	0.21	I	ug/L	P353517	
		Lead	0.22		ug/L	P352944	
		Nickel	0.78	I	ug/L	P352944	
		Silver	0.010	U	ug/L	P352944	

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 Pine Barren Creek Above CR 99 **Collection Date/Time: 10/02/2018 12:50**

Field ID: G4NW0420 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2030707	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P352806	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P353255	
		Sulfate	0.75		mg SO4/L	P353256	
	SM 2120 B	Color (true)	61		PCU	P352754	
	SM 2320 B-97	Total Alkalinity	0.67	I	mg CaCO3/L	P353024	RPD
	SM 2540 C-97	TDS	28		mg/L	P353108	
	SM 2540 D-97	TSS	4	I	mg/L	P353125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P353027	
2030712	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P353051	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P352934	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P352956	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P352782	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P352968	
2030717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P352710	

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: P352805

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352806

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352944

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: P352944

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353517

Component	Result	Code	Units
Copper	0.20	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353036

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353038

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353255

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353255

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353256

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353050

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353051

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352933

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352934

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352955

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352956

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352782

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352710

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

Reference Method: SM 2120 B
Batch ID: P352753

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P352754

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P353024

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

Reference Method: SM 2540 C-97
Batch ID: P353108

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P353125

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353027

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352968

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: P352944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	101		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	95.3		P	85 - 115
Sodium	96.0		P	85 - 115
Zinc	97.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	100		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	98.9		P	85 - 115
Lead	92.2		P	85 - 115
Nickel	106		P	85 - 115
Silver	97.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	98.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353036

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353038

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353255

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353050

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353051

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352934

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352955

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: P352956

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352782

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352710

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

Reference Method: SM 2120 B
Batch ID: P352753

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P352754

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

Reference Method: SM 2320 B-97
Batch ID: P353024

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P353027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030652	Calcium	106		P	80 - 120
2030652	Iron	104		P	80 - 120
2030652	Magnesium	107		P	80 - 120
2030652	Potassium	101		P	80 - 120
2030652	Sodium	92.2		P	80 - 120
2030652	Zinc	98.5		P	80 - 120
2031012	Calcium	106	104	P/P	80 - 120
2031012	Iron	103	102	P/P	80 - 120
2031012	Magnesium	105	104	P/P	80 - 120
2031012	Potassium	97.9	97.0	P/P	80 - 120
2031012	Sodium	94.0		P	80 - 120
2031012	Zinc	99.3	98.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030652	Arsenic	101		P	80 - 120
2030652	Cadmium	103		P	80 - 120
2030652	Chromium	99.2		P	80 - 120
2030652	Lead	92.0		P	80 - 120
2030652	Nickel	107		P	80 - 120
2030652	Silver	95.8		P	80 - 120
2031012	Arsenic	101	99.6	P/P	80 - 120
2031012	Cadmium	103	105	P/P	80 - 120
2031012	Chromium	98.3	97.7	P/P	80 - 120
2031012	Lead	91.8	90.7	P/P	80 - 120
2031012	Nickel	105	106	P/P	80 - 120
2031012	Silver	96.4	94.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034391	Copper	93.1		P	80 - 120
2034419	Copper	96.8	94.4	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030645	Chloride	99.1		P	90 - 110
2030661	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030645	Sulfate	97.6		P	90 - 110
2030661	Sulfate	98.0		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030743	Chloride	99.7		P	90 - 110
2030788	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030743	Sulfate	99.9		P	90 - 110
2030788	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030664	Ammonia-N	96.1	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030710	Ammonia-N	100	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030701	Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030712	Kjeldahl Nitrogen	103	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030668	NO2NO3-N	94.8	93.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030711	NO2NO3-N	99.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030709	Total-P	101	98.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030713	O-Phosphate-P	98.7	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P353027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2031038	Fluoride	97.4	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2030665	Organic Carbon	98.6	95.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030700	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030746	Turbidity	0.353	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P352944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2031012	Calcium	1.62	Spike	P	0 - 20
2031012	Iron	0.933	Spike	P	0 - 20
2031012	Magnesium	1.38	Spike	P	0 - 20
2031012	Potassium	0.919	Spike	P	0 - 20
2031012	Sodium	0.452	Spike	P	0 - 20
2031012	Zinc	0.578	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2031012	Arsenic	1.17	Spike	P	0 - 20
2031012	Cadmium	1.55	Spike	P	0 - 20
2031012	Chromium	0.554	Spike	P	0 - 20
2031012	Lead	1.13	Spike	P	0 - 20
2031012	Nickel	0.354	Spike	P	0 - 20
2031012	Silver	1.71	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P353517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034419	Copper	2.46	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030645	Chloride	1.95	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030645	Sulfate	0.988	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030743	Chloride	1.89	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030743	Sulfate	0.0551	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030664	Ammonia-N	0.606	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P353051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030710	Ammonia-N	0.823	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030701	Kjeldahl Nitrogen	2.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030712	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030668	NO2NO3-N	1.43	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030711	NO2NO3-N	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030709	Total-P	2.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030713	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P352753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030661	Color (true)	0.607	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P352754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030743	Color (true)	0.0339	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P353024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2031038	Total Alkalinity	2.00	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P353108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030743	TDS	6.02	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P353027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2031038	Fluoride	0.473	Spike	P	0 - 3.5

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P352968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2030665	Organic Carbon	3.14	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: A86891
Included Lab Sample IDs: 2030702, 2030713, 2030714, 2030715, 2030716, 2030717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	99.9	99.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A86905
Included Lab Sample IDs: 2030700, 2030703, 2030704, 2030705, 2030706, 2030707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.0	P/P	90 - 115
Color (true)	99.0	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86923
Included Lab Sample IDs: 2030700, 2030703, 2030704, 2030705, 2030706, 2030707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105
Turbidity	103	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86974
Included Lab Sample IDs: 2030701, 2030708, 2030709, 2030710, 2030711, 2030712

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86985
Included Lab Sample IDs: 2030701, 2030708, 2030709, 2030710, 2030711, 2030712

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

Reference Method: SM 5310 B-00
Run ID: A86987
Included Lab Sample IDs: 2030701, 2030708, 2030709, 2030710, 2030711, 2030712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	93.6	P/P	90 - 110
Organic Carbon	93.6	95.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A87013
Included Lab Sample IDs: 2030700, 2030703, 2030704, 2030705, 2030706, 2030707

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A87013
Included Lab Sample IDs: 2030700, 2030703, 2030704, 2030705, 2030706, 2030707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A87017
Included Lab Sample IDs: 2030700, 2030703, 2030704, 2030705

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	100	P/P	90 - 110
Sulfate	106	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87024
Included Lab Sample IDs: 2030701, 2030708, 2030709, 2030710, 2030711, 2030712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	95.2	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87033
Included Lab Sample IDs: 2030701, 2030708, 2030709, 2030710, 2030711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	103	P/P	90 - 110
Kjeldahl Nitrogen	97.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87045
Included Lab Sample IDs: 2030712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A87105
Included Lab Sample IDs: 2030706, 2030707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	100	P/P	90 - 110
Sulfate	98.4	99.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A87161
Included Lab Sample IDs: 2030736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.5	99.5	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	99.9	101	P/P	90 - 110
Lead	97.6	98.7	P/P	90 - 110
Silver	94.5	95.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A87223
Included Lab Sample IDs: 2030736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Potassium	99.1	98.6	P/P	90 - 110
Sodium	97.3	97.1	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A87265
Included Lab Sample IDs: 2030736

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A87269
Included Lab Sample IDs: 2030736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	98.7	97.6	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		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						3.65	
	Turbidity						0.353	
EPA 200.7 Rev. 4.4	Calcium	104	106	106	104			1.62
	Iron	101	104	103	102			0.933
	Magnesium	104	107	105	104			1.38
	Potassium	95.3	101	97.9	97.0			0.919
	Sodium	96.0	92.2	94.0				0.452
	Zinc	97.2	98.5	99.3	98.8			0.578
EPA 200.8 Rev. 5.4	Arsenic	100	101	101	99.6			1.17
	Cadmium	103	103	103	105			1.55
	Chromium	98.9	99.2	98.3	97.7			0.554
	Copper	98.5	93.1	96.8	94.4			2.46
	Lead	92.2	92.0	91.8	90.7			1.13
	Nickel	106	107	105	106			0.354
	Silver	97.2	95.8	96.4	94.8			1.71
EPA 300.0 Rev. 2.1	Chloride	100	99.1	97.6			1.95	
	Chloride	100	99.7	101			1.89	
	Sulfate	98.7	97.6	98.0			0.988	
	Sulfate	99.4	99.9	100			0.0551	
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	96.1	96.8				0.606
	Ammonia-N	99.4	100	99.1				0.823
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	103	106				2.46
	Kjeldahl Nitrogen	109	103	99.8				2.90
EPA 353.2 Rev. 2.0	NO2NO3-N	100	94.8	93.4				1.43
	NO2NO3-N	100	99.2	101				1.13
EPA 365.1 Rev. 2.0	Total-P	106	101	98.9				2.54
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	98.7	99.8				1.11
SM 2120 B	Color (true)	102					0.607	
	Color (true)	102					0.0339	
SM 2320 B-97	Total Alkalinity	104					2.00	
SM 2540 C-97	TDS						6.02	
SM 4500 F-C-97	Fluoride	98.5	97.4	98.0				0.473
SM 5310 B-00	Organic Carbon	93.0	98.6	95.5				3.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2030736
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2030736
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2030701, 2030708, 2030709, 2030710, 2030711, 2030712
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2030701, 2030708, 2030709, 2030710, 2030711, 2030712
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2030701, 2030708, 2030709, 2030710, 2030711, 2030712
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2030701, 2030708, 2030709, 2030710, 2030711, 2030712

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2030702, 2030713, 2030714, 2030715, 2030716, 2030717
SM 2120 B / E31780	True Color measured at 450 nm	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2030701, 2030708, 2030709, 2030710, 2030711, 2030712

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	10/03/2018			10/03/2018 16:51	Megan Treadwell	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
EPA 200.7 Rev. 4.4	10/03/2018	10/08/2018 14:00	Elliott D. Healy	10/23/2018 11:16	Betina Topolski	2030736
EPA 200.8 Rev. 5.4	10/03/2018	10/08/2018 14:00	Elliott D. Healy	10/18/2018 18:18	Robert K Palmer	2030736
	10/03/2018	10/08/2018 14:00	Elliott D. Healy	10/24/2018 12:30	Robert K Palmer	2030736
	10/03/2018	10/23/2018 15:20	Elliott D. Healy	10/25/2018 04:55	Robert K Palmer	2030736
EPA 300.0 Rev. 2.1	10/03/2018			10/09/2018 07:50	Lipi Saha	2030700
	10/03/2018			10/09/2018 08:02	Lipi Saha	2030703
	10/03/2018			10/09/2018 08:14	Lipi Saha	2030704
	10/03/2018			10/09/2018 08:27	Lipi Saha	2030705
	10/03/2018			10/17/2018 23:51	Lipi Saha	2030706
	10/03/2018			10/18/2018 00:03	Lipi Saha	2030707
EPA 350.1 Rev. 2.0	10/03/2018			10/05/2018 13:13	Ping Hua	2030701
	10/03/2018			10/05/2018 13:15	Ping Hua	2030708
	10/03/2018			10/05/2018 13:16	Ping Hua	2030709
	10/03/2018			10/05/2018 13:22	Ping Hua	2030710
	10/03/2018			10/05/2018 13:33	Ping Hua	2030711
	10/03/2018			10/05/2018 13:34	Ping Hua	2030712
EPA 351.2 Rev. 2.0	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/15/2018 13:14	Joseph Suarez	2030701
	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/15/2018 13:22	Joseph Suarez	2030708
	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/15/2018 13:23	Joseph Suarez	2030709
	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/15/2018 13:25	Joseph Suarez	2030710
	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/15/2018 13:26	Joseph Suarez	2030711
	10/03/2018	10/08/2018 11:45	Adrian Shelby	10/16/2018 09:45	Joseph Suarez	2030712
EPA 353.2 Rev. 2.0	10/03/2018			10/08/2018 12:12	Lauren Bottorf	2030701
	10/03/2018			10/08/2018 12:22	Lauren Bottorf	2030711
	10/03/2018			10/08/2018 12:30	Lauren Bottorf	2030712
	10/03/2018			10/08/2018 14:39	Lauren Bottorf	2030708
	10/03/2018			10/08/2018 14:40	Lauren Bottorf	2030709
	10/03/2018			10/08/2018 14:41	Lauren Bottorf	2030710
EPA 365.1 Rev. 2.0	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:48	Beverly Y. Sanders	2030701
	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:49	Beverly Y. Sanders	2030708
	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:50	Beverly Y. Sanders	2030709
	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:51	Beverly Y. Sanders	2030710
	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:52	Beverly Y. Sanders	2030711
	10/03/2018	10/04/2018 12:35	Sima Feizi	10/05/2018 14:53	Beverly Y. Sanders	2030712
EPA 365.1 Rev. 2.0 dissolved	10/03/2018			10/03/2018 16:50	Julia Storbeck	2030713
	10/03/2018			10/03/2018 17:30	Julia Storbeck	2030702
	10/03/2018			10/03/2018 17:31	Julia Storbeck	2030714
	10/03/2018			10/03/2018 17:32	Julia Storbeck	2030715

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	10/03/2018			10/03/2018 17:33	Julia Storbeck	2030716, 2030717
SM 2120 B	10/03/2018			10/03/2018 15:38	Chelsea Hernandez	2030700
	10/03/2018			10/03/2018 15:39	Chelsea Hernandez	2030703
	10/03/2018			10/03/2018 15:40	Chelsea Hernandez	2030704
	10/03/2018			10/03/2018 15:43	Chelsea Hernandez	2030705
	10/03/2018			10/03/2018 15:44	Chelsea Hernandez	2030706
	10/03/2018			10/03/2018 15:45	Chelsea Hernandez	2030707
SM 2320 B-97	10/03/2018			10/09/2018 11:21	Dale L. Simmons	2030700
	10/03/2018			10/09/2018 11:33	Dale L. Simmons	2030703
	10/03/2018			10/09/2018 11:43	Dale L. Simmons	2030704
	10/03/2018			10/09/2018 11:54	Dale L. Simmons	2030705
	10/03/2018			10/09/2018 12:04	Dale L. Simmons	2030706
	10/03/2018			10/09/2018 12:14	Dale L. Simmons	2030707
SM 2540 C-97	10/03/2018			10/05/2018 16:36	Yijie Li	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 2540 D-97	10/03/2018			10/05/2018 16:36	Yijie Li	2030700, 2030703, 2030704, 2030705, 2030706, 2030707
SM 4500 F-C-97	10/03/2018			10/09/2018 11:21	Dale L. Simmons	2030700
	10/03/2018			10/09/2018 11:33	Dale L. Simmons	2030703
	10/03/2018			10/09/2018 11:43	Dale L. Simmons	2030704
	10/03/2018			10/09/2018 11:54	Dale L. Simmons	2030705
	10/03/2018			10/09/2018 12:04	Dale L. Simmons	2030706
	10/03/2018			10/09/2018 12:14	Dale L. Simmons	2030707
SM 5310 B-00	10/03/2018			10/06/2018 01:25	Megan Treadwell	2030701
	10/03/2018			10/06/2018 01:38	Megan Treadwell	2030708
	10/03/2018			10/06/2018 01:50	Megan Treadwell	2030709
	10/03/2018			10/06/2018 02:06	Megan Treadwell	2030710
	10/03/2018			10/06/2018 02:43	Megan Treadwell	2030711
	10/03/2018			10/06/2018 02:55	Megan Treadwell	2030712