Chemical Analysis Report

NE-DIST-2018-07-11-01

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

Event Description: **LSJR West2**
Request ID: **RQ-2018-06-25-08**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 02-AUG-2018 10:13

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: McGirts Creek at Helsema Rd **Collection Date/Time: 07/10/2018 11:25**

Field ID: 20030877 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006360	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P348271	
	EPA 300.0 Rev. 2.1	Chloride	13	A	mg Cl/L	P348798	
		Sulfate	13	A	mg SO4/L	P348803	
	SM 2120 B	Color (true)	220		PCU	P348260	
	SM 2320 B-97	Total Alkalinity	7.1		mg CaCO3/L	P348511	
	SM 2540 C-97	TDS	94		mg/L	P348814	
	SM 2540 D-97	TSS	4	I	mg/L	P348819	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P348515	
2006364	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P348721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P348766	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P348414	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P348305	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P348386	
2006368	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P348435	
2006388	EPA 200.7 Rev. 4.4	Calcium	10.8		mg/L	P348308	
		Iron	1.42E+03		ug/L	P348308	
		Magnesium	1.34		mg/L	P348308	
		Potassium	0.72	I	mg/L	P348308	
		Sodium	7.9		mg/L	P348308	
		Zinc	5.4	I	ug/L	P348308	
	EPA 200.8 Rev. 5.4	Arsenic	0.62		ug/L	P348308	
		Cadmium	0.020	U	ug/L	P348308	
		Chromium	0.68	I	ug/L	P348308	
		Copper	0.32	I	ug/L	P348308	
		Lead	8.20		ug/L	P348308	
		Nickel	0.82		ug/L	P348308	
		Silver	0.010	U	ug/L	P348756	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 07/17/2018.

Sample Location: McGirts Creek at Old Plank Road **Collection Date/Time: 07/10/2018 11:05**

Field ID: 20030346 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006361	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P348271	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P348798	
		Sulfate	12		mg SO4/L	P348803	
	SM 2120 B	Color (true)	210		PCU	P348260	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P348511	
	SM 2540 C-97	TDS	94		mg/L	P348814	
	SM 2540 D-97	TSS	4	I	mg/L	P348819	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P348515	
2006365	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P348721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P348766	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P348415	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P348305	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P348386	
2006369	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P348436	
2006389	EPA 200.7 Rev. 4.4	Calcium	11.5		mg/L	P348308	
		Iron	1.24E+03		ug/L	P348308	
		Magnesium	1.38		mg/L	P348308	
		Potassium	0.92	I	mg/L	P348308	
		Sodium	8.7		mg/L	P348308	
		Zinc	5.1	I	ug/L	P348308	
	EPA 200.8 Rev. 5.4	Arsenic	0.58		ug/L	P348308	
		Cadmium	0.020	U	ug/L	P348308	
		Chromium	0.65	I	ug/L	P348308	
		Copper	0.33	I	ug/L	P348308	
		Lead	6.18		ug/L	P348308	
		Nickel	0.78	I	ug/L	P348308	
		Silver	0.010	U	ug/L	P348756	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 07/17/2018.

Sample Location: Yellow Water Cr at Bicentennial **Collection Date/Time: 07/10/2018 10:00**

Field ID: G2NE1153 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006362	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P348271	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P348798	
		Sulfate	0.52	I	mg SO4/L	P348803	
	SM 2120 B	Color (true)	490		PCU	P348260	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P348511	
	SM 2540 C-97	TDS	97		mg/L	P348814	
	SM 2540 D-97	TSS	6	I	mg/L	P348819	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P348515	
2006366	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P348721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P348766	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P348415	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P348305	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P348386	
2006370	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P348436	
2006390	EPA 200.7 Rev. 4.4	Calcium	5.33		mg/L	P348308	
		Iron	2.65E+03		ug/L	P348308	
		Magnesium	1.09		mg/L	P348308	
		Potassium	0.30	U	mg/L	P348308	
		Sodium	4.4		mg/L	P348308	
		Zinc	14	I	ug/L	P348308	
	EPA 200.8 Rev. 5.4	Arsenic	0.64		ug/L	P348308	
		Cadmium	0.022	I	ug/L	P348308	
		Chromium	1.2	I	ug/L	P348308	
		Copper	1.98		ug/L	P348308	
		Lead	1.80		ug/L	P348308	
		Nickel	1.13		ug/L	P348308	
		Silver	0.010	U	ug/L	P348756	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 07/17/2018.

Sample Location: Yellow Water Cr at SR 228 **Collection Date/Time: 07/10/2018 09:30**

Field ID: 20030549 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006363	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P348271	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P348798	
		Sulfate	0.50	I	mg SO4/L	P348803	
	SM 2120 B	Color (true)	490		PCU	P348260	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P348511	
	SM 2540 C-97	TDS	81		mg/L	P348814	
	SM 2540 D-97	TSS	8	I	mg/L	P348819	
	SM 4500 F-C-97	Fluoride	0.043	I	mg F/L	P348515	
2006367	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P348721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P348766	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P348415	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P348305	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P348386	
2006371	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P348436	
2006391	EPA 200.7 Rev. 4.4	Calcium	5.38		mg/L	P348308	
		Iron	2.56E+03		ug/L	P348308	
		Magnesium	1.10		mg/L	P348308	
		Potassium	0.30	U	mg/L	P348308	
		Sodium	4.3		mg/L	P348308	
		Zinc	13	I	ug/L	P348308	
	EPA 200.8 Rev. 5.4	Arsenic	0.65		ug/L	P348308	
		Cadmium	0.021	I	ug/L	P348308	
		Chromium	1.2	I	ug/L	P348308	
		Copper	2.13		ug/L	P348308	
		Lead	2.44		ug/L	P348308	
		Nickel	1.11		ug/L	P348308	
		Silver	0.010	U	ug/L	P348756	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 07/17/2018.

Sample Location: NE ROC DI **Collection Date/Time: 07/10/2018 10:10**

Field ID: BLANK 07102018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2006372	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P348271	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P348798	
		Sulfate	0.20	U	mg SO4/L	P348803	
	SM 2120 B	Color (true)	2.5	U	PCU	P348260	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348511	
	SM 2540 C-97	TDS	15	U	mg/L	P348813	
	SM 2540 D-97	TSS	2	U	mg/L	P348818	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P348515	
2006373	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P348721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P348766	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P348415	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P348305	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P348386	
2006392	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P348308	
		Iron	30	U	ug/L	P348308	
		Magnesium	0.040	U	mg/L	P348308	
		Potassium	0.30	U	mg/L	P348308	
		Sodium	0.50	U	mg/L	P348308	
		Zinc	5.0	U	ug/L	P348308	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P348308	
		Cadmium	0.020	U	ug/L	P348308	
		Chromium	0.40	U	ug/L	P348308	
		Copper	0.20	U	ug/L	P348308	
		Lead	0.050	U	ug/L	P348308	
		Nickel	0.20	U	ug/L	P348308	
		Silver	0.010	U	ug/L	P348756	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348271

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348308

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: P348308

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348756

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348798

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348803

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348766

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348766

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348414

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348415

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348436

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

Reference Method: SM 2120 B
Batch ID: P348260

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348511

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

Reference Method: SM 2540 C-97
Batch ID: P348813

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P348814

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348818

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348819

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348515

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348386

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: P348308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	108		P	85 - 115
Iron	105		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.4		P	85 - 115
Cadmium	95.2		P	85 - 115
Chromium	98.2		P	85 - 115
Copper	92.7		P	85 - 115
Lead	94.1		P	85 - 115
Nickel	95.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	105		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348798

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348803

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348766

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348414

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348414

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348415

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: P348305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348435

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348436

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

Reference Method: SM 2120 B
Batch ID: P348260

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P348511

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

Reference Method: SM 4500 F-C-97
Batch ID: P348515

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

Reference Method: SM 5310 B-00
Batch ID: P348386

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006246	Calcium	106		P	80 - 120
2006246	Iron	109	109	P/P	80 - 120
2006246	Magnesium	108		P	80 - 120
2006246	Potassium	105		P	80 - 120
2006246	Sodium	102		P	80 - 120
2006246	Zinc	106	105	P/P	80 - 120
2006388	Calcium	107		P	80 - 120
2006388	Iron	105		P	80 - 120
2006388	Magnesium	110		P	80 - 120
2006388	Potassium	103		P	80 - 120
2006388	Sodium	100		P	80 - 120
2006388	Zinc	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006246	Arsenic	98.0	98.4	P/P	75 - 125
2006246	Cadmium	96.2	96.4	P/P	75 - 125
2006246	Chromium	96.0	95.8	P/P	75 - 125
2006246	Copper	90.3	91.9	P/P	75 - 125
2006246	Lead	95.1	95.6	P/P	75 - 125
2006246	Nickel	92.7	93.5	P/P	75 - 125
2006388	Arsenic	94.6		P	80 - 120
2006388	Cadmium	95.5		P	80 - 120
2006388	Chromium	97.6		P	80 - 120
2006388	Copper	90.7		P	80 - 120
2006388	Lead	94.2		P	80 - 120
2006388	Nickel	93.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006249	Silver	101	100	P/P	75 - 125
2006251	Silver	101		P	75 - 125

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006360	Chloride	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006360	Sulfate	103		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006364	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006365	Kjeldahl Nitrogen	95.8	92.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006340	NO2NO3-N	99.6	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006365	NO2NO3-N	99.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006413	Total-P	94.7	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006348	O-Phosphate-P	98.4	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006438	O-Phosphate-P	97.6	97.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P348386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2006342	Organic Carbon	98.4	99.5	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006335	Turbidity	3.88	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P348308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006246	Calcium	1.00	Spike	P	0 - 20
2006246	Iron	0.0809	Spike	P	0 - 20
2006246	Magnesium	0.288	Spike	P	0 - 20
2006246	Potassium	0.114	Spike	P	0 - 20
2006246	Sodium	1.02	Spike	P	0 - 20
2006246	Zinc	1.06	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006246	Arsenic	0.370	Spike	P	0 - 20
2006246	Cadmium	0.259	Spike	P	0 - 20
2006246	Chromium	0.230	Spike	P	0 - 20
2006246	Copper	1.66	Spike	P	0 - 20
2006246	Lead	0.513	Spike	P	0 - 20
2006246	Nickel	0.797	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P348756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006249	Silver	0.817	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006360	Chloride	2.67	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006360	Sulfate	2.21	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006364	Ammonia-N	0.144	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006365	Kjeldahl Nitrogen	2.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006340	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006365	NO2NO3-N	0.866	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006413	Total-P	7.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006348	O-Phosphate-P	0.910	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006438	O-Phosphate-P	0.0863	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P348260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006339	Color (true)	1.43	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P348511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006963	Total Alkalinity	0.276	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P348813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006061	TDS	4.47	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P348814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006062	TDS	7.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P348515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006963	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P348386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2006342	Organic Carbon	0.933	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: A85151
Included Lab Sample IDs: 2006360, 2006361, 2006362, 2006363, 2006372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	99.8	P/P	90 - 115
Color (true)	99.4	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85154
Included Lab Sample IDs: 2006360, 2006361, 2006362, 2006363, 2006372

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85198
Included Lab Sample IDs: 2006366, 2006367

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	109	107	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A85202
Included Lab Sample IDs: 2006364, 2006365, 2006366, 2006367, 2006373

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85206
Included Lab Sample IDs: 2006364, 2006365, 2006373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85210
Included Lab Sample IDs: 2006368, 2006369, 2006370, 2006371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85220
Included Lab Sample IDs: 2006364, 2006365, 2006366, 2006367, 2006373

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A85228
Included Lab Sample IDs: 2006388, 2006389, 2006390, 2006391, 2006392

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A85228
Included Lab Sample IDs: 2006388, 2006389, 2006390, 2006391, 2006392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	106	107	P/P	90 - 110
Calcium	107	105	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Iron	104	104	P/P	90 - 110
Magnesium	104	105	P/P	90 - 110
Magnesium	105	106	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	101	103	P/P	90 - 110
Sodium	103	100	P/P	90 - 110
Zinc	104	105	P/P	90 - 110
Zinc	105	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A85236
Included Lab Sample IDs: 2006388, 2006389, 2006390, 2006391, 2006392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	94.1	94.3	P/P	90 - 110
Arsenic	95.6	93.2	P/P	90 - 110
Cadmium	91.7	93.6	P/P	90 - 110
Cadmium	93.1	91.4	P/P	90 - 110
Copper	92.9	91.9	P/P	90 - 110
Copper	95.6	92.6	P/P	90 - 110
Lead	92.9	93.7	P/P	90 - 110
Lead	95.0	93.0	P/P	90 - 110
Nickel	93.2	92.5	P/P	90 - 110
Nickel	95.8	92.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A85254
Included Lab Sample IDs: 2006360, 2006361, 2006362, 2006363, 2006372

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

Reference Method: SM 4500 F-C-97
Run ID: A85254
Included Lab Sample IDs: 2006360, 2006361, 2006362, 2006363, 2006372

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A85261
Included Lab Sample IDs: 2006388, 2006389, 2006390, 2006391, 2006392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	100	97.3	P/P	90 - 110
Chromium	96.6	97.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85324
Included Lab Sample IDs: 2006364, 2006365, 2006366, 2006367, 2006373

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85337
Included Lab Sample IDs: 2006360, 2006361, 2006362, 2006363, 2006372

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85379
Included Lab Sample IDs: 2006364, 2006365, 2006366, 2006367, 2006373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	96.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A85389
Included Lab Sample IDs: 2006388, 2006389, 2006390, 2006391, 2006392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	104	104	P/P	90 - 110
Silver	98.1	104	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						3.88	
EPA 200.7 Rev. 4.4	Calcium	108	107	106				1.00
	Iron	105	105	109	109			0.0809
	Magnesium	106	110	108				0.288
	Potassium	102	103	105				0.114
	Sodium	102	100	102				1.02
	Zinc	104	105	106	105			1.06
EPA 200.8 Rev. 5.4	Arsenic	95.4	98.0	98.4	94.6			0.370
	Cadmium	95.2	96.2	96.4	95.5			0.259
	Chromium	98.2	96.0	95.8	97.6			0.230
	Copper	92.7	90.3	91.9	90.7			1.66
	Lead	94.1	95.1	95.6	94.2			0.513
	Nickel	95.7	92.7	93.5	93.3			0.797
	Silver	105	101	100	101			0.817
EPA 300.0 Rev. 2.1	Chloride	105	108				2.67	
	Sulfate	103	103				2.21	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	101				0.144
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	95.8	92.1				2.48
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.6	101				1.45
	NO2NO3-N	100	99.4	98.4				0.866
EPA 365.1 Rev. 2.0	Total-P	97.5	94.7	102				7.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.3	98.4	99.3				0.910
	O-Phosphate-P	98.7	97.6	97.7				0.0863
SM 2120 B	Color (true)	98.7					1.43	
SM 2320 B-97	Total Alkalinity	102					0.276	
SM 2540 C-97	TDS						4.47	
	TDS						7.26	
SM 4500 F-C-97	Fluoride	98.5						0.470
SM 5310 B-00	Organic Carbon	98.0	99.5	98.4				0.933

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2006360, 2006361, 2006362, 2006363, 2006372
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2006388, 2006389, 2006390, 2006391, 2006392
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2006388, 2006389, 2006390, 2006391, 2006392
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2006360, 2006361, 2006362, 2006363, 2006372
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2006360, 2006361, 2006362, 2006363, 2006372
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2006364, 2006365, 2006366, 2006367, 2006373
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2006364, 2006365, 2006366, 2006367, 2006373
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2006364, 2006365, 2006366, 2006367, 2006373
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2006364, 2006365, 2006366, 2006367, 2006373
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2006368, 2006369, 2006370, 2006371
SM 2120 B / E31780	True Color measured at 450 nm	2006360, 2006361, 2006362, 2006363, 2006372

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2006360, 2006361, 2006362, 2006363, 2006372
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2006360, 2006361, 2006362, 2006363, 2006372
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2006360, 2006361, 2006362, 2006363, 2006372
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2006360, 2006361, 2006362, 2006363, 2006372
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2006364, 2006365, 2006366, 2006367, 2006373

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	07/11/2018			07/11/2018 17:13	William L. Brown IV	2006360, 2006361, 2006362, 2006363, 2006372
EPA 200.7 Rev. 4.4	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 14:50	Betina Topolski	2006392
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 16:26	Betina Topolski	2006388
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 16:44	Betina Topolski	2006389
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 16:51	Betina Topolski	2006390
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 16:57	Betina Topolski	2006391
EPA 200.8 Rev. 5.4	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 16:58	Allison Taylor	2006392
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 20:21	Allison Taylor	2006388
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 20:40	Allison Taylor	2006389
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 20:50	Allison Taylor	2006390
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/13/2018 20:59	Allison Taylor	2006391
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/16/2018 19:48	Allison Taylor	2006392
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/16/2018 23:00	Allison Taylor	2006388
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/16/2018 23:20	Allison Taylor	2006389
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/16/2018 23:29	Allison Taylor	2006390
	07/11/2018	07/12/2018 13:45	Elliott D. Healy	07/16/2018 23:39	Allison Taylor	2006391
	07/11/2018	07/19/2018 13:30	Elliott D. Healy	07/20/2018 16:04	Robert K Palmer	2006392
	07/11/2018	07/19/2018 13:30	Elliott D. Healy	07/20/2018 18:20	Robert K Palmer	2006388
	07/11/2018	07/19/2018 13:30	Elliott D. Healy	07/20/2018 18:27	Robert K Palmer	2006389
	07/11/2018	07/19/2018 13:30	Elliott D. Healy	07/20/2018 18:33	Robert K Palmer	2006390
	07/11/2018	07/19/2018 13:30	Elliott D. Healy	07/20/2018 18:40	Robert K Palmer	2006391
EPA 300.0 Rev. 2.1	07/11/2018			07/20/2018 02:25	Lipi Saha	2006360
	07/11/2018			07/20/2018 02:49	Lipi Saha	2006361
	07/11/2018			07/20/2018 03:01	Lipi Saha	2006362
	07/11/2018			07/20/2018 03:12	Lipi Saha	2006363
	07/11/2018			07/20/2018 03:24	Lipi Saha	2006372
EPA 350.1 Rev. 2.0	07/11/2018			07/18/2018 10:59	Ping Hua	2006364
	07/11/2018			07/18/2018 11:04	Ping Hua	2006373
	07/11/2018			07/18/2018 11:11	Ping Hua	2006365
	07/11/2018			07/18/2018 11:13	Ping Hua	2006366
	07/11/2018			07/18/2018 11:14	Ping Hua	2006367
EPA 351.2 Rev. 2.0	07/11/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 10:19	Joseph Suarez	2006364
	07/11/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 10:21	Joseph Suarez	2006365
	07/11/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 10:26	Joseph Suarez	2006366
	07/11/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 10:27	Joseph Suarez	2006367
	07/11/2018	07/19/2018 14:00	Adrian Shelby	07/20/2018 10:29	Joseph Suarez	2006373
EPA 353.2 Rev. 2.0	07/11/2018			07/13/2018 12:03	Lauren Bottorf	2006364
	07/11/2018			07/13/2018 12:10	Lauren Bottorf	2006365
	07/11/2018			07/13/2018 12:16	Lauren Bottorf	2006373

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	07/11/2018			07/13/2018 12:19	Lauren Bottorf	2006366
	07/11/2018			07/13/2018 12:20	Lauren Bottorf	2006367
EPA 365.1 Rev. 2.0	07/11/2018	07/12/2018 11:10	Sima Feizi	07/13/2018 09:40	Beverly Y. Sanders	2006366
	07/11/2018	07/12/2018 11:10	Sima Feizi	07/13/2018 09:41	Beverly Y. Sanders	2006367
	07/11/2018	07/12/2018 11:10	Sima Feizi	07/13/2018 11:55	Beverly Y. Sanders	2006364
	07/11/2018	07/12/2018 11:10	Sima Feizi	07/13/2018 11:56	Beverly Y. Sanders	2006365
	07/11/2018	07/12/2018 11:10	Sima Feizi	07/13/2018 11:57	Beverly Y. Sanders	2006373
EPA 365.1 Rev. 2.0 dissolved	07/11/2018			07/11/2018 18:04	Julia Storbeck	2006368
	07/11/2018			07/11/2018 18:05	Julia Storbeck	2006369
	07/11/2018			07/11/2018 18:06	Julia Storbeck	2006370
	07/11/2018			07/11/2018 18:07	Julia Storbeck	2006371
SM 2120 B	07/11/2018			07/11/2018 15:39	Tanya Welborn	2006372
	07/11/2018			07/11/2018 15:58	Tanya Welborn	2006360
	07/11/2018			07/11/2018 15:59	Tanya Welborn	2006361
	07/11/2018			07/11/2018 16:00	Tanya Welborn	2006362
	07/11/2018			07/11/2018 16:01	Tanya Welborn	2006363
SM 2320 B-97	07/11/2018			07/14/2018 02:02	Dale L. Simmons	2006360
	07/11/2018			07/14/2018 02:12	Dale L. Simmons	2006361
	07/11/2018			07/14/2018 02:23	Dale L. Simmons	2006362
	07/11/2018			07/14/2018 02:32	Dale L. Simmons	2006363
	07/11/2018			07/14/2018 02:46	Dale L. Simmons	2006372
SM 2540 C-97	07/11/2018			07/13/2018 15:35	Yijie Li	2006360, 2006361, 2006362, 2006363, 2006372
SM 2540 D-97	07/11/2018			07/13/2018 15:35	Yijie Li	2006360, 2006361, 2006362, 2006363, 2006372
SM 4500 F-C-97	07/11/2018			07/14/2018 02:02	Dale L. Simmons	2006360
	07/11/2018			07/14/2018 02:12	Dale L. Simmons	2006361
	07/11/2018			07/14/2018 02:23	Dale L. Simmons	2006362
	07/11/2018			07/14/2018 02:32	Dale L. Simmons	2006363
	07/11/2018			07/14/2018 02:46	Dale L. Simmons	2006372
SM 5310 B-00	07/11/2018			07/12/2018 21:28	Megan Treadwell	2006364
	07/11/2018			07/12/2018 21:40	Megan Treadwell	2006365
	07/11/2018			07/12/2018 21:52	Megan Treadwell	2006366
	07/11/2018			07/12/2018 22:04	Megan Treadwell	2006367
	07/11/2018			07/12/2018 22:17	Megan Treadwell	2006373