Chemical Analysis Report

SO-DIST-2018-09-13-01

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

Event Description: **CALOOSA LT 3240A**
Request ID: **RQ-2018-09-03-25**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
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FLDEP South District Office
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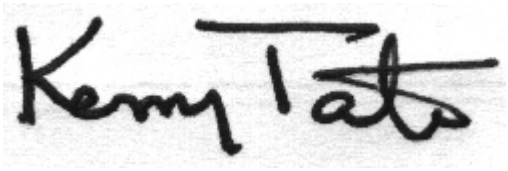
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 24-OCT-2018 10:57



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: USGSStation-PuntaBlanca **Collection Date/Time: 09/12/2018 10:00**

Field ID: G3SD0108 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024922	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P351904	
	SM 4500 F-C-97	Fluoride	0.62		mg F/L	P351907	
2024926	SM 5310 B-00 dissolved	Organic Carbon	11		mg C/L	P351880	
2024930	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P351750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P351816	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P351803	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P351880	
2024934	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P351617	
2024956	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P351838	
		Zinc	15	U	ug/L	P351838	
	EPA 200.8 Rev. 5.4	Arsenic	2.49		ug/L	P325215	
		Cadmium	0.060	U	ug/L	P325215	
		Chromium	1.2	U	ug/L	P352215	
		Copper	1.2	I	ug/L	P352215	
		Lead	0.15	U	ug/L	P352215	
		Nickel	0.60	U	ug/L	P352215	
		Silver	0.030	U	ug/L	P351838	

Sample Location: USGS Station-ShellPoint **Collection Date/Time: 09/12/2018 10:25**

Field ID: G3SD0109 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024923	SM 2320 B-97	Total Alkalinity	120	A	mg CaCO3/L	P351904	
	SM 4500 F-C-97	Fluoride	0.49		mg F/L	P351907	
2024927	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P351880	
2024931	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P351766	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P351750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P351816	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P351803	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P351880	
2024935	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P351617	
2024957	EPA 200.7 Rev. 4.4	Iron	100	I	ug/L	P351838	
		Zinc	15	U	ug/L	P351838	
	EPA 200.8 Rev. 5.4	Arsenic	2.15		ug/L	P325215	
		Cadmium	0.060	U	ug/L	P325215	
		Chromium	1.2	U	ug/L	P352215	
		Copper	1.1	I	ug/L	P352215	
		Lead	0.15	U	ug/L	P352215	
		Nickel	0.60	U	ug/L	P352215	
		Silver	0.030	U	ug/L	P351838	

Sample Location: Marker # 76 **Collection Date/Time: 09/12/2018 10:50**

Field ID: G3SD0110 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024924	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P351714	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P351718	
2024928	SM 5310 B-00 dissolved	Organic Carbon	16		mg C/L	P351909	
2024932	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P352036	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P351750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P351816	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P351803	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P351909	
2024936	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.087		mg P/L	P351617	
2024958	EPA 200.7 Rev. 4.4	Iron	180		ug/L	P351756	
		Zinc	5.0	U	ug/L	P351756	
	EPA 200.8 Rev. 5.4	Arsenic	2.03		ug/L	P351756	
		Cadmium	0.020	U	ug/L	P351756	
		Chromium	0.40	U	ug/L	P351756	
		Copper	1.04		ug/L	P351756	
		Lead	0.13	I	ug/L	P351756	
		Nickel	0.40	I	ug/L	P351756	
		Silver	0.010	U	ug/L	P351756	

Sample Location: Marker # 52 **Collection Date/Time: 09/12/2018 11:25**

Field ID: G3SD0111 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024925	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P351714	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P351718	
2024929	SM 5310 B-00 dissolved	Organic Carbon	19		mg C/L	P351909	
2024933	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P351822	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P352396	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P351830	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P351751	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P351909	
2024937	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.075		mg P/L	P351614	
2024959	EPA 200.7 Rev. 4.4	Iron	270		ug/L	P351756	
		Zinc	5.0	U	ug/L	P351756	
	EPA 200.8 Rev. 5.4	Arsenic	1.66		ug/L	P351756	
		Cadmium	0.020	U	ug/L	P351756	
		Chromium	0.54	I	ug/L	P351756	
		Copper	0.95		ug/L	P351756	
		Lead	0.17	I	ug/L	P351756	
		Nickel	0.49	I	ug/L	P351756	
		Silver	0.010	U	ug/L	P351756	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351756

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351838

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325215

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351756

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351838

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352215

Component	Result	Code	Units
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 350.1 Rev. 2.0
Batch ID: P351766

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351822

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352036

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351750

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352396

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351816

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351830

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351751

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351614

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351617

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

Reference Method: SM 2320 B-97
Batch ID: P351714

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

Reference Method: SM 2320 B-97
Batch ID: P351904

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

Reference Method: SM 4500 F-C-97
Batch ID: P351718

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P351880

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

Reference Method: SM 5310 B-00
Batch ID: P351909

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351880

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351909

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: P351756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	108		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	90.8		P	85 - 115
Cadmium	87.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351756

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.4		P	85 - 115
Cadmium	106		P	85 - 115
Chromium	109		P	85 - 115
Copper	93.5		P	85 - 115
Lead	106		P	85 - 115
Nickel	95.4		P	85 - 115
Silver	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	112		P	85 - 115
Copper	110		P	85 - 115
Lead	104		P	85 - 115
Nickel	103		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.9		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351822

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351750

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352396

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: P351816

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: P351830

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351751

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351614

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351617

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

Reference Method: SM 2320 B-97
Batch ID: P351714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P351904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P351909

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351909

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024826	Iron	106		P	80 - 120
2024826	Zinc	104		P	80 - 120
2025161	Iron	106	109	P/P	80 - 120
2025161	Zinc	102	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024957	Iron	94.7	97.8	P/P	80 - 120
2024957	Zinc	91.7	96.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027454	Arsenic	116	115	P/P	70 - 130
2027454	Cadmium	98.4	96.6	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024826	Arsenic	98.1		P	80 - 120
2024826	Cadmium	105		P	80 - 120
2024826	Chromium	104		P	80 - 120
2024826	Copper	91.1		P	80 - 120
2024826	Lead	103		P	80 - 120
2024826	Nickel	90.8		P	80 - 120
2024826	Silver	101		P	80 - 120
2025161	Arsenic	103	102	P/P	80 - 120
2025161	Cadmium	107	106	P/P	80 - 120
2025161	Chromium	108	109	P/P	80 - 120
2025161	Copper	92.6	93.4	P/P	80 - 120
2025161	Lead	106	107	P/P	80 - 120
2025161	Nickel	96.0	95.8	P/P	80 - 120
2025161	Silver	105	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024957	Silver	95.8	78.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2027454	Chromium	104	104	P/P	80 - 120
2027454	Copper	104	103	P/P	80 - 120
2027454	Lead	105	105	P/P	80 - 120
2027454	Nickel	96.3	96.6	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024487	Ammonia-N	95.2	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351822

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025041	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024932	Ammonia-N	97.0	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024538	Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026926	Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024539	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024888	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351751

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025041	Total-P	99.0	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024931	Total-P	99.6	94.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024937	O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024934	O-Phosphate-P	98.7	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P351718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024833	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024923	Fluoride	96.1	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P351880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024489	Organic Carbon	95.9	94.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P351909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024928	Organic Carbon	97.2	98.0	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024489	Organic Carbon	95.9	94.8	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024928	Organic Carbon	97.2	98.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025161	Iron	2.21	Spike	P	0 - 20
2025161	Zinc	0.392	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P351838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024957	Iron	3.12	Spike	P	0 - 20
2024957	Zinc	5.44	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027454	Arsenic	1.05	Spike	P	0 - 20
2027454	Cadmium	1.84	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025161	Arsenic	0.339	Spike	P	0 - 20
2025161	Cadmium	0.782	Spike	P	0 - 20
2025161	Chromium	0.271	Spike	P	0 - 20
2025161	Copper	0.867	Spike	P	0 - 20
2025161	Lead	1.18	Spike	P	0 - 20
2025161	Nickel	0.159	Spike	P	0 - 20
2025161	Silver	0.227	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P351838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024957	Silver	19.8	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P352215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027454	Chromium	0.0567	Spike	P	0 - 20
2027454	Copper	1.04	Spike	P	0 - 20
2027454	Lead	0.0601	Spike	P	0 - 20
2027454	Nickel	0.303	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024487	Ammonia-N	3.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P351822

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025041	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024932	Ammonia-N	4.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024538	Kjeldahl Nitrogen	1.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026926	Kjeldahl Nitrogen	0.0979	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024539	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P351830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024888	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025041	Total-P	1.13	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024931	Total-P	4.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024937	O-Phosphate-P	0.400	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024934	O-Phosphate-P	0.315	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024833	Total Alkalinity	1.13	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P351904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024923	Total Alkalinity	0.155	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P351718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024833	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P351907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024923	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P351880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024489	Organic Carbon	1.09	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P351909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024928	Organic Carbon	0.450	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024489	Organic Carbon	1.09	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P351909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024928	Organic Carbon	0.450	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: A86464
Included Lab Sample IDs: 2024934, 2024935, 2024936, 2024937

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.5	P/P	90 - 110
O-Phosphate-P	99.2	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A86512
Included Lab Sample IDs: 2024924, 2024925

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: A86512
Included Lab Sample IDs: 2024924, 2024925

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86531
Included Lab Sample IDs: 2024930, 2024931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86540
Included Lab Sample IDs: 2024933

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86551
Included Lab Sample IDs: 2024930, 2024931, 2024932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.4	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86553
Included Lab Sample IDs: 2024930, 2024931, 2024932

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86557
Included Lab Sample IDs: 2024933

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86558
Included Lab Sample IDs: 2024933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A86565
Included Lab Sample IDs: 2024958, 2024959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	98.8	P/P	90 - 110
Zinc	102	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A86574
Included Lab Sample IDs: 2024930, 2024931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	94.6	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved
Run ID: A86574
Included Lab Sample IDs: 2024926, 2024927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86577
Included Lab Sample IDs: 2024932

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86578
Included Lab Sample IDs: 2024930, 2024931

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A86586
Included Lab Sample IDs: 2024922, 2024923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A86586
Included Lab Sample IDs: 2024922, 2024923

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

Reference Method: SM 4500 F-C-97
Run ID: A86586
Included Lab Sample IDs: 2024922, 2024923

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.0	P/P	90 - 110
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A86587
Included Lab Sample IDs: 2024932, 2024933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved
Run ID: A86587
Included Lab Sample IDs: 2024928, 2024929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.0	P/P	90 - 110
Organic Carbon	98.5	97.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A86620
Included Lab Sample IDs: 2024956, 2024957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	95.9	95.9	P/P	90 - 110
Iron	97.8	95.9	P/P	90 - 110
Zinc	95.8	98.5	P/P	90 - 110
Zinc	98.5	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86626
Included Lab Sample IDs: 2024932

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86668
Included Lab Sample IDs: 2024956, 2024957, 2024958, 2024959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	93.6	94.6	P/P	90 - 110
Cadmium	97.9	97.3	P/P	90 - 110
Chromium	103	103	P/P	90 - 110
Copper	90.7	91.3	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86668
Included Lab Sample IDs: 2024956, 2024957, 2024958, 2024959

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86743
Included Lab Sample IDs: 2024958, 2024959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	92.8	94.0	P/P	90 - 110
Nickel	94.0	90.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86769
Included Lab Sample IDs: 2024933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A86832
Included Lab Sample IDs: 2024956, 2024957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	103	P/P	90 - 110
Cadmium	96.7	97.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A87140
Included Lab Sample IDs: 2024956, 2024957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	98.2	97.5	P/P	90 - 110
Nickel	96.4	94.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A87191
Included Lab Sample IDs: 2024956, 2024957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	105	105	P/P	90 - 110
Copper	106	106	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 200.7 Rev. 4.4	Iron	108	106	106	109			2.21
	Iron	102	94.7	97.8				3.12
	Zinc	101	104	102	101			0.392
	Zinc	100	91.7	96.8				5.44
EPA 200.8 Rev. 5.4	Arsenic	90.8	116	115				1.05
	Arsenic	99.4	98.1	103	102			0.339
	Cadmium	87.8	98.4	96.6				1.84
	Cadmium	106	105	107	106			0.782
	Chromium	109	104	108	109			0.271
	Chromium	112	104	104				0.0567
	Copper	93.5	92.6	93.4	91.1			0.867
	Copper	110	104	103				1.04
	Lead	106	103	106	107			1.18
	Lead	104	105	105				0.0601
	Nickel	95.4	90.8	96.0	95.8			0.159
	Nickel	103	96.3	96.6				0.303
	Silver	104	101	105	105			0.227
	Silver	106	95.8	78.5				19.8
EPA 350.1 Rev. 2.0	Ammonia-N	94.9	95.2	98.5				3.23
	Ammonia-N	98.8	102	104				1.26
	Ammonia-N	97.8	97.0	106				4.63
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	106	108				1.90
	Kjeldahl Nitrogen	104	104	104				0.0979
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	100				0.499
	NO2NO3-N	102	101	101				0.0
EPA 365.1 Rev. 2.0	Total-P	101	99.0	97.8				1.13
	Total-P	98.2	99.6	94.8				4.44
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	99.4				0.400
	O-Phosphate-P	100	98.7	99.2				0.315
SM 2320 B-97	Total Alkalinity	103					1.13	
	Total Alkalinity	101					0.155	
SM 4500 F-C-97	Fluoride	97.2	98.7	98.7				0.0
	Fluoride	98.1	96.1	96.1				0.0
SM 5310 B-00	Organic Carbon	96.6	95.9	94.8				1.09
	Organic Carbon	102	97.2	98.0				0.450
SM 5310 B-00 dissolved	Organic Carbon	96.6	95.9	94.8				1.09
	Organic Carbon	102	97.2	98.0				0.450

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2024956, 2024957, 2024958, 2024959
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2024956, 2024957, 2024958, 2024959
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2024930, 2024931, 2024932, 2024933
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2024930, 2024931, 2024932, 2024933
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2024930, 2024931, 2024932, 2024933
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2024930, 2024931, 2024932, 2024933

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	2024934, 2024935, 2024936, 2024937
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2024922, 2024923, 2024924, 2024925
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2024922, 2024923, 2024924, 2024925
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2024930, 2024931, 2024932, 2024933
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2024926, 2024927, 2024928, 2024929

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/18/2018 14:51	Betina Topolski	2024958
	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/18/2018 15:02	Betina Topolski	2024959
	09/13/2018	09/18/2018 16:40	Elliott D. Healy	09/20/2018 17:19	Betina Topolski	2024956
	09/13/2018	09/18/2018 16:40	Elliott D. Healy	09/20/2018 17:49	Betina Topolski	2024957
EPA 200.8 Rev. 5.4	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/21/2018 22:51	Allison Taylor	2024958
	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/21/2018 23:01	Allison Taylor	2024959
	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/25/2018 18:38	Allison Taylor	2024958
	09/13/2018	09/17/2018 15:55	Elliott D. Healy	09/25/2018 19:15	Allison Taylor	2024959
	09/13/2018	09/18/2018 16:40	Elliott D. Healy	09/22/2018 14:07	Allison Taylor	2024956
	09/13/2018	09/18/2018 16:40	Elliott D. Healy	09/22/2018 14:17	Allison Taylor	2024957
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/02/2018 06:19	Robert K Palmer	2024956
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/02/2018 06:28	Robert K Palmer	2024957
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/19/2018 07:38	Allison Taylor	2024956
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/19/2018 07:48	Allison Taylor	2024957
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/20/2018 02:14	Allison Taylor	2024956
	09/13/2018	09/25/2018 16:00	Elliott D. Healy	10/20/2018 02:21	Allison Taylor	2024957
EPA 350.1 Rev. 2.0	09/13/2018			09/17/2018 15:09	Ping Hua	2024930
	09/13/2018			09/17/2018 15:10	Ping Hua	2024931
	09/13/2018			09/18/2018 12:36	Ping Hua	2024933
	09/13/2018			09/20/2018 12:38	Ping Hua	2024932
EPA 351.2 Rev. 2.0	09/13/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 13:39	Joseph Suarez	2024930
	09/13/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 13:40	Joseph Suarez	2024931
	09/13/2018	09/17/2018 15:30	Adrian Shelby	09/18/2018 13:42	Joseph Suarez	2024932
	09/13/2018	09/27/2018 15:15	Adrian Shelby	09/28/2018 10:02	Joseph Suarez	2024933
EPA 353.2 Rev. 2.0	09/13/2018			09/18/2018 13:55	Lauren Bottorf	2024933
	09/13/2018			09/18/2018 15:01	Lauren Bottorf	2024930
	09/13/2018			09/18/2018 15:03	Lauren Bottorf	2024931
	09/13/2018			09/18/2018 15:04	Lauren Bottorf	2024932
EPA 365.1 Rev. 2.0	09/13/2018	09/17/2018 13:00	Sima Feizi	09/18/2018 08:18	Beverly Y. Sanders	2024933
	09/13/2018	09/18/2018 12:30	Sima Feizi	09/19/2018 10:43	Beverly Y. Sanders	2024932
	09/13/2018	09/18/2018 12:30	Sima Feizi	09/19/2018 11:18	Beverly Y. Sanders	2024930
	09/13/2018	09/18/2018 12:30	Sima Feizi	09/19/2018 11:19	Beverly Y. Sanders	2024931
EPA 365.1 Rev. 2.0 dissolved	09/13/2018			09/13/2018 15:11	Julia Storbeck	2024937
	09/13/2018			09/13/2018 15:32	Julia Storbeck	2024934
	09/13/2018			09/13/2018 15:34	Julia Storbeck	2024935
	09/13/2018			09/13/2018 15:35	Julia Storbeck	2024936
SM 2320 B-97	09/13/2018			09/15/2018 05:06	Dale L. Simmons	2024925
	09/13/2018			09/15/2018 06:44	Dale L. Simmons	2024924
	09/13/2018			09/19/2018 06:39	Dale L. Simmons	2024923
	09/13/2018			09/19/2018 09:06	Dale L. Simmons	2024922

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	09/13/2018			09/15/2018 05:06	Dale L. Simmons	2024925
	09/13/2018			09/15/2018 06:44	Dale L. Simmons	2024924
	09/13/2018			09/19/2018 04:57	Dale L. Simmons	2024923
	09/13/2018			09/19/2018 06:21	Dale L. Simmons	2024922
SM 5310 B-00	09/13/2018			09/18/2018 10:44	Megan Treadwell	2024930
	09/13/2018			09/18/2018 10:57	Megan Treadwell	2024931
	09/13/2018			09/19/2018 03:37	Megan Treadwell	2024932
	09/13/2018			09/19/2018 03:49	Megan Treadwell	2024933
SM 5310 B-00 dissolved	09/13/2018			09/18/2018 10:04	Megan Treadwell	2024926
	09/13/2018			09/18/2018 10:17	Megan Treadwell	2024927
	09/13/2018			09/19/2018 02:12	Megan Treadwell	2024928
	09/13/2018			09/19/2018 03:25	Megan Treadwell	2024929