Chemical Analysis Report

NW-DIST-2020-10-01-01

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

Event Description: **Defuniak Run**
Request ID: **RQ-2020-09-28-59**
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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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 21-OCT-2020 10:18

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Rocky Creek @ 200/201 **Collection Date/Time: 09/30/2020 15:14**

Field ID: G3NW0059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199322	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P388513	
		Sulfate	0.49	I	mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	30		PCU	P388125	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	15	U	mg/L	P388407	
	SM 2540 D-2011	TSS	2	I	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199325	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P388214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.079		mg N/L	P388148	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	2.5		mg C/L	P388299	
2199328	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Panther Creek Upstream Of Sr280 **Collection Date/Time: 09/30/2020 14:14**

Field ID: G3NW0061 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199313	EPA 180.1 Rev. 2.0	Turbidity	3.9	A	NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P388513	
		Sulfate	0.80		mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	69		PCU	P388125	
	SM 2320 B-2011	Total Alkalinity	1.8	I	mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	33		mg/L	P388407	
	SM 2540 D-2011	TSS	2	U	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199316	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P388214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P388147	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P388299	
2199319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	
2199343	EPA 200.7 Rev. 4.4	Barium	13.3		ug/L	P388231	
		Calcium	1.29		mg/L	P388231	
		Iron	680		ug/L	P388231	
		Magnesium	0.57		mg/L	P388231	
		Potassium	0.35	I	mg/L	P388231	
		Sodium	2.0		mg/L	P388231	
		Zinc	5.0	U	ug/L	P388231	
	EPA 200.8 Rev. 5.4	Aluminum	269		ug/L	P388231	
		Antimony	0.050	U	ug/L	P388231	
		Arsenic	0.33		ug/L	P388231	
		Beryllium	0.058		ug/L	P388231	
		Boron**	8.9		ug/L	P388231	
		Cadmium	0.020	U	ug/L	P388231	
		Chromium	0.45	I	ug/L	P388231	
		Copper	0.40	U	ug/L	P388231	
		Lead	0.26	I	ug/L	P388231	
		Nickel	0.52	I	ug/L	P388231	
		Selenium	0.20	U	ug/L	P388231	
		Silver	0.010	U	ug/L	P388231	
		Thallium	0.10	U	ug/L	P388231	
	SM 2340B	Hardness	5.6		mg/L	P388231	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Juniper Creek Upstream Of Eglin Rd 221 **Collection Date/Time: 09/30/2020 15:58**

Field ID: G3NW0170 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199323	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P388513	
		Sulfate	0.54		mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	10	AJ	PCU	P388126	RPD
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	16	I	mg/L	P388407	
	SM 2540 D-2011	TSS	2	U	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199326	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.099	I	mg N/L	P388256	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P388148	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	1.1		mg C/L	P388299	
2199329	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	

Ref. Method and Comment:
SM 2120 B-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Baggett Creek Upstream Of Keyser Mill Road **Collection Date/Time: 09/30/2020 10:52**

Field ID: G4NW0335 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199314	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P388513	
		Sulfate	0.93		mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	45		PCU	P388125	
	SM 2320 B-2011	Total Alkalinity	3.4		mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	28		mg/L	P388407	
	SM 2540 D-2011	TSS	3	I	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199317	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P388256	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P388147	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	3.8	A	mg C/L	P388299	
2199320	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	
2199344	EPA 200.7 Rev. 4.4	Barium	35.4		ug/L	P388231	
		Calcium	1.30		mg/L	P388231	
		Iron	1.11E+03		ug/L	P388231	
		Magnesium	1.20		mg/L	P388231	
		Potassium	0.60	I	mg/L	P388231	
		Sodium	2.3		mg/L	P388231	
		Zinc	5.0	U	ug/L	P388231	
	EPA 200.8 Rev. 5.4	Aluminum	99		ug/L	P388231	
		Antimony	0.050	U	ug/L	P388231	
		Arsenic	0.46		ug/L	P388231	
		Beryllium	0.018	I	ug/L	P388231	
		Boron**	9.7		ug/L	P388231	
		Cadmium	0.020	U	ug/L	P388231	
		Chromium	0.40	U	ug/L	P388231	
		Copper	0.40	U	ug/L	P388231	
		Lead	0.20	U	ug/L	P388231	
		Nickel	0.50	U	ug/L	P388231	
		Selenium	0.20	U	ug/L	P388231	
		Silver	0.010	U	ug/L	P388231	
		Thallium	0.10	U	ug/L	P388231	
	SM 2340B	Hardness	8.2		mg/L	P388231	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Baggett Creek Upstream Of Hwy 90 **Collection Date/Time: 09/30/2020 11:17**

Field ID: G4NW0336 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199315	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P388513	
		Sulfate	0.69		mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	61		PCU	P388125	
	SM 2320 B-2011	Total Alkalinity	6.4		mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	34		mg/L	P388407	
	SM 2540 D-2011	TSS	3	I	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199318	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P388256	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P388147	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P388299	
2199321	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	
2199345	EPA 200.7 Rev. 4.4	Barium	21.2		ug/L	P388231	
		Calcium	2.81		mg/L	P388231	
		Iron	870		ug/L	P388231	
		Magnesium	1.14		mg/L	P388231	
		Potassium	0.58	I	mg/L	P388231	
		Sodium	2.3		mg/L	P388231	
		Zinc	5.0	U	ug/L	P388231	
	EPA 200.8 Rev. 5.4	Aluminum	121		ug/L	P388231	
		Antimony	0.050	U	ug/L	P388231	
		Arsenic	0.40		ug/L	P388231	
		Beryllium	0.016	I	ug/L	P388231	
		Boron**	9.8		ug/L	P388231	
		Cadmium	0.020	U	ug/L	P388231	
		Chromium	0.40	U	ug/L	P388231	
		Copper	0.40	U	ug/L	P388231	
		Lead	0.20	U	ug/L	P388231	
		Nickel	0.50	U	ug/L	P388231	
		Selenium	0.20	U	ug/L	P388231	
		Silver	0.010	U	ug/L	P388231	
		Thallium	0.10	U	ug/L	P388231	
	SM 2340B	Hardness	11.7		mg/L	P388231	

Ref. Method and Comment:
SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Gum Creek **Collection Date/Time: 09/30/2020 13:15**

Field ID: G4NW0382 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2199324	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P388122	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P388513	
		Sulfate	0.45	I	mg SO4/L	P388515	
	SM 2120 B-2011	Color (true)	180		PCU	P388126	RPD
	SM 2320 B-2011	Total Alkalinity	1.2	I	mg CaCO3/L	P388248	
	SM 2540 C-2011	TDS	48		mg/L	P388407	
	SM 2540 D-2011	TSS	8	I	mg/L	P388409	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P388252	
2199327	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P388179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P388256	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P388148	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P388158	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P388299	
2199330	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P388130	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388122

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388231

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388231

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388513

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388515

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388179

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388214

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388256

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388147

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388148

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388158

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388130

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

Reference Method: SM 2120 B-2011
Batch ID: P388125

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P388126

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P388248

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P388407

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P388409

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P388252

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P388299

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: P388231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	104		P	85 - 115
Iron	103		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	99.5		P	85 - 115
Sodium	103		P	85 - 115
Zinc	96.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.1		P	85 - 115
Antimony	98.6		P	85 - 115
Arsenic	97.1		P	85 - 115
Beryllium	91.7		P	85 - 115
Boron	92.5		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	97.6		P	85 - 115
Copper	95.1		P	85 - 115
Lead	93.5		P	85 - 115
Nickel	96.6		P	85 - 115
Selenium	96.6		P	85 - 115
Silver	94.8		P	85 - 115
Thallium	96.0		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388513

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388515

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388179

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388214

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388256

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388147

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388148

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: P388158

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388130

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

Reference Method: SM 2120 B-2011
Batch ID: P388125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	94.7		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P388126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	93.6		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P388248

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P388252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	90 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P388299

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199769	Barium	105	105	P/P	80 - 120
2199769	Calcium	111	109	P/P	80 - 120
2199769	Iron	109	108	P/P	80 - 120
2199769	Magnesium	109	108	P/P	80 - 120
2199769	Potassium	109	107	P/P	80 - 120
2199769	Sodium	102		P	80 - 120
2199769	Zinc	102	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199769	Aluminum	97.7	95.3	P/P	80 - 120
2199769	Antimony	101	99.4	P/P	80 - 120
2199769	Arsenic	100	98.3	P/P	80 - 120
2199769	Beryllium	95.9	94.2	P/P	80 - 120
2199769	Boron	93.0	92.2	P/P	80 - 120
2199769	Cadmium	97.5	95.4	P/P	80 - 120
2199769	Chromium	101	98.2	P/P	80 - 120
2199769	Copper	100	97.1	P/P	80 - 120
2199769	Lead	95.7	94.1	P/P	80 - 120
2199769	Nickel	99.3	96.7	P/P	80 - 120
2199769	Selenium	99.8	97.2	P/P	80 - 120
2199769	Silver	94.5	92.4	P/P	80 - 120
2199769	Thallium	97.2	98.6	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199113	Chloride	102		P	90 - 110
2199571	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199113	Sulfate	100		P	90 - 110
2199571	Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199326	Ammonia-N	102	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199325	Kjeldahl Nitrogen	95.5	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199318	Kjeldahl Nitrogen	91.3	92.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199316	NO2NO3-N	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199325	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199316	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199160	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P388252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199690	Fluoride	98.6	98.6	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P388299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2199317	Organic Carbon	101		P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P388122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199313	Turbidity	2.06	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P388231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199769	Barium	0.0279	Spike	P	0 - 20
2199769	Calcium	1.77	Spike	P	0 - 20
2199769	Iron	0.868	Spike	P	0 - 20
2199769	Magnesium	0.726	Spike	P	0 - 20
2199769	Potassium	1.42	Spike	P	0 - 20
2199769	Sodium	1.08	Spike	P	0 - 20
2199769	Zinc	0.139	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P388231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199769	Aluminum	2.13	Spike	P	0 - 20
2199769	Antimony	1.67	Spike	P	0 - 20
2199769	Arsenic	1.89	Spike	P	0 - 20
2199769	Beryllium	1.68	Spike	P	0 - 20
2199769	Boron	0.723	Spike	P	0 - 20
2199769	Cadmium	2.24	Spike	P	0 - 20
2199769	Chromium	2.49	Spike	P	0 - 20
2199769	Copper	3.11	Spike	P	0 - 20
2199769	Lead	1.62	Spike	P	0 - 20
2199769	Nickel	2.58	Spike	P	0 - 20
2199769	Selenium	2.61	Spike	P	0 - 20
2199769	Silver	2.28	Spike	P	0 - 20
2199769	Thallium	1.40	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199571	Chloride	1.02	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199571	Sulfate	1.37	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P388179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199326	Ammonia-N	3.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199325	Kjeldahl Nitrogen	5.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P388256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199318	Kjeldahl Nitrogen	0.908	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199316	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P388148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199325	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199316	Total-P	2.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P388130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199160	O-Phosphate-P	0.166	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P388126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199323	Color (true)	26.6	Sample	F	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-2011
Batch ID: P388248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199690	Total Alkalinity	0.418	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P388407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199237	TDS	5.13	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P388409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199237	TSS	6.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P388252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199690	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P388299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2199317	Organic Carbon	2.56	Sample	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A101319
Included Lab Sample IDs: 2199313, 2199314, 2199315, 2199322, 2199323, 2199324

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

Reference Method: SM 2120 B-2011
Run ID: A101320
Included Lab Sample IDs: 2199313, 2199314, 2199315, 2199322, 2199323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.7	96.5	P/P	90 - 115
Color (true)	96.5	97.0	P/P	90 - 115

Reference Method: SM 2120 B-2011
Run ID: A101321
Included Lab Sample IDs: 2199324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.6	97.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A101323
Included Lab Sample IDs: 2199319, 2199320, 2199321, 2199328, 2199329, 2199330

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.9	P/P	90 - 110
O-Phosphate-P	99.1	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A101332
Included Lab Sample IDs: 2199316, 2199317, 2199318, 2199325, 2199326, 2199327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A101344
Included Lab Sample IDs: 2199316, 2199317, 2199318, 2199325, 2199326, 2199327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	92.4	P/P	90 - 110
Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A101373
Included Lab Sample IDs: 2199313, 2199314, 2199315, 2199322, 2199323, 2199324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A101373
Included Lab Sample IDs: 2199313, 2199314, 2199315, 2199322, 2199323, 2199324

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101383
Included Lab Sample IDs: 2199316, 2199325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	93.9	P/P	90 - 110
Kjeldahl Nitrogen	93.9	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A101384
Included Lab Sample IDs: 2199316, 2199317, 2199318, 2199325, 2199326, 2199327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.0	94.8	P/P	90 - 110
Total-P	94.5	94.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A101393
Included Lab Sample IDs: 2199316, 2199317, 2199318, 2199325, 2199326, 2199327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.4	P/P	90 - 110
Organic Carbon	98.0	97.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A101398
Included Lab Sample IDs: 2199313, 2199314, 2199315, 2199322, 2199323, 2199324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	98.8	P/P	90 - 110
Sulfate	96.0	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A101403
Included Lab Sample IDs: 2199317, 2199318, 2199326, 2199327

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.1	P/P	90 - 110
Kjeldahl Nitrogen	99.1	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A101439
Included Lab Sample IDs: 2199343, 2199344, 2199345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.5	94.3	P/P	90 - 110
Antimony	98.0	98.7	P/P	90 - 110
Arsenic	97.8	96.8	P/P	90 - 110
Beryllium	95.6	95.1	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A101439
Included Lab Sample IDs: 2199343, 2199344, 2199345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	95.4	96.9	P/P	90 - 110
Cadmium	96.0	96.4	P/P	90 - 110
Chromium	95.4	95.6	P/P	90 - 110
Copper	95.2	93.8	P/P	90 - 110
Lead	95.8	96.2	P/P	90 - 110
Nickel	96.6	94.8	P/P	90 - 110
Selenium	97.0	97.8	P/P	90 - 110
Silver	98.6	98.1	P/P	90 - 110
Thallium	93.5	92.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A101466
Included Lab Sample IDs: 2199343, 2199344, 2199345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	98.9	P/P	90 - 110
Barium	103	101	P/P	90 - 110
Calcium	102	101	P/P	90 - 110
Calcium	103	102	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	100	99.4	P/P	90 - 110
Potassium	100	100	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Sodium	103	102	P/P	90 - 110
Zinc	102	99.6	P/P	90 - 110
Zinc	99.6	97.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.06	
EPA 200.7 Rev. 4.4	Barium	100	105	105			0.0279
	Calcium	104	111	109			1.77
	Iron	103	109	108			0.868
	Magnesium	102	109	108			0.726
	Potassium	99.5	109	107			1.42
	Sodium	103	102				1.08
	Zinc	96.9	102	102			0.139
EPA 200.8 Rev. 5.4	Aluminum	95.1	97.7	95.3			2.13
	Antimony	98.6	101	99.4			1.67
	Arsenic	97.1	100	98.3			1.89
	Beryllium	91.7	95.9	94.2			1.68
	Boron	92.5	93.0	92.2			0.723
	Cadmium	96.6	97.5	95.4			2.24
	Chromium	97.6	101	98.2			2.49
	Copper	95.1	100	97.1			3.11
	Lead	93.5	95.7	94.1			1.62
	Nickel	96.6	99.3	96.7			2.58
	Selenium	96.6	99.8	97.2			2.61
	Silver	94.8	94.5	92.4			2.28
	Thallium	96.0	97.2	98.6			1.40
EPA 300.0 Rev. 2.1	Chloride	102	102	102		1.02	
	Sulfate	97.9	96.5	100		1.37	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	102	105			3.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.5	102			5.51
	Kjeldahl Nitrogen	107	91.3	92.4			0.908
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.6	100			0.468
	NO2NO3-N	102	103	103			0.0
EPA 365.1 Rev. 2.0	Total-P	108	105	107			2.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	100	101			0.166
SM 2120 B-2011	Color (true)	94.7					
	Color (true)	93.6				26.6	
SM 2320 B-2011	Total Alkalinity	103				0.418	
SM 2540 C-2011	TDS					5.13	
SM 2540 D-2011	TSS					6.90	
SM 4500 F-C-2011	Fluoride	99.8	98.6	98.6			0.0
SM 5310 B-2011	Organic Carbon	100	101			2.56	

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2199343, 2199344, 2199345
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2199343, 2199344, 2199345
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2199316, 2199317, 2199318, 2199325, 2199326, 2199327

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2199316, 2199317, 2199318, 2199325, 2199326, 2199327
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2199316, 2199317, 2199318, 2199325, 2199326, 2199327
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2199316, 2199317, 2199318, 2199325, 2199326, 2199327
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2199319, 2199320, 2199321, 2199328, 2199329, 2199330
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2199343, 2199344, 2199345
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2199316, 2199317, 2199318, 2199325, 2199326, 2199327

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	10/01/2020			10/01/2020 14:34	Yen Ta	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
EPA 200.7 Rev. 4.4	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/09/2020 18:03	Betina Topolski	2199343
	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/09/2020 18:08	Betina Topolski	2199344
	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/09/2020 18:42	Betina Topolski	2199345
EPA 200.8 Rev. 5.4	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/08/2020 17:17	Alexander Thompson	2199343
	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/08/2020 17:24	Alexander Thompson	2199344
	10/01/2020	10/05/2020 16:00	Elliott D. Healy	10/08/2020 17:32	Alexander Thompson	2199345
EPA 300.0 Rev. 2.1	10/01/2020			10/09/2020 22:16	Lipi Saha	2199313
	10/01/2020			10/09/2020 22:29	Lipi Saha	2199314
	10/01/2020			10/09/2020 22:42	Lipi Saha	2199315
	10/01/2020			10/09/2020 22:55	Lipi Saha	2199322
	10/01/2020			10/09/2020 23:08	Lipi Saha	2199323
	10/01/2020			10/09/2020 23:21	Lipi Saha	2199324
EPA 350.1 Rev. 2.0	10/01/2020			10/04/2020 11:00	Ping Hua	2199326
	10/01/2020			10/04/2020 11:05	Ping Hua	2199316
	10/01/2020			10/04/2020 11:12	Ping Hua	2199317
	10/01/2020			10/04/2020 11:14	Ping Hua	2199318
	10/01/2020			10/04/2020 11:15	Ping Hua	2199325
	10/01/2020			10/04/2020 11:17	Ping Hua	2199327
EPA 351.2 Rev. 2.0	10/01/2020	10/05/2020 12:25	David Boose	10/06/2020 13:15	Elliott Rodriguez	2199325
	10/01/2020	10/05/2020 12:25	David Boose	10/06/2020 13:38	Elliott Rodriguez	2199316
	10/01/2020	10/06/2020 11:20	David Boose	10/07/2020 11:32	Elliott Rodriguez	2199318
	10/01/2020	10/06/2020 11:20	David Boose	10/07/2020 11:45	Elliott Rodriguez	2199317
	10/01/2020	10/06/2020 11:20	David Boose	10/07/2020 11:47	Elliott Rodriguez	2199326
	10/01/2020	10/06/2020 11:20	David Boose	10/07/2020 11:48	Elliott Rodriguez	2199327
EPA 353.2 Rev. 2.0	10/01/2020			10/02/2020 10:18	Beverly Y. Sanders	2199316
	10/01/2020			10/02/2020 10:31	Beverly Y. Sanders	2199317
	10/01/2020			10/02/2020 10:32	Beverly Y. Sanders	2199318
	10/01/2020			10/02/2020 10:39	Beverly Y. Sanders	2199325
	10/01/2020			10/02/2020 10:48	Beverly Y. Sanders	2199326
	10/01/2020			10/02/2020 10:49	Beverly Y. Sanders	2199327
EPA 365.1 Rev. 2.0	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:48	Lipi Saha	2199316
	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:49	Lipi Saha	2199317
	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:50	Lipi Saha	2199318
	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:51	Lipi Saha	2199325
	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:52	Lipi Saha	2199326
	10/01/2020	10/02/2020 14:22	Yen Ta	10/06/2020 14:00	Lipi Saha	2199327
EPA 365.1 Rev. 2.0 dissolved	10/01/2020			10/01/2020 16:30	Samantha Davila	2199319, 2199320
	10/01/2020			10/01/2020 16:36	Samantha Davila	2199321

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	10/01/2020			10/01/2020 16:37	Samantha Davila	2199328
	10/01/2020			10/01/2020 16:38	Samantha Davila	2199329
	10/01/2020			10/01/2020 16:39	Samantha Davila	2199330
SM 2120 B-2011	10/01/2020			10/01/2020 15:52	Benjamin T. Nordmann	2199313
	10/01/2020			10/01/2020 15:53	Benjamin T. Nordmann	2199314
	10/01/2020			10/01/2020 15:54	Benjamin T. Nordmann	2199315, 2199322
	10/01/2020			10/01/2020 15:58	Benjamin T. Nordmann	2199323
	10/01/2020			10/01/2020 16:47	Benjamin T. Nordmann	2199324
SM 2320 B-2011	10/01/2020			10/05/2020 22:55	Dale L. Simmons	2199313
	10/01/2020			10/05/2020 23:05	Dale L. Simmons	2199314
	10/01/2020			10/05/2020 23:16	Dale L. Simmons	2199315
	10/01/2020			10/05/2020 23:24	Dale L. Simmons	2199322
	10/01/2020			10/05/2020 23:33	Dale L. Simmons	2199323
	10/01/2020			10/05/2020 23:43	Dale L. Simmons	2199324
SM 2340B	10/01/2020			10/09/2020 18:03	Betina Topolski	2199343
	10/01/2020			10/09/2020 18:08	Betina Topolski	2199344
	10/01/2020			10/09/2020 18:42	Betina Topolski	2199345
SM 2540 C-2011	10/01/2020			10/02/2020 18:03	Madeline Gruver	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 2540 D-2011	10/01/2020			10/02/2020 19:08	Madeline Gruver	2199313, 2199314, 2199315, 2199322, 2199323, 2199324
SM 4500 F-C-2011	10/01/2020			10/05/2020 22:55	Dale L. Simmons	2199313
	10/01/2020			10/05/2020 23:05	Dale L. Simmons	2199314
	10/01/2020			10/05/2020 23:16	Dale L. Simmons	2199315
	10/01/2020			10/05/2020 23:24	Dale L. Simmons	2199322
	10/01/2020			10/05/2020 23:33	Dale L. Simmons	2199323
	10/01/2020			10/05/2020 23:43	Dale L. Simmons	2199324
SM 5310 B-2011	10/01/2020			10/06/2020 21:25	Madeline Gruver	2199317
	10/01/2020			10/06/2020 23:52	Madeline Gruver	2199316
	10/01/2020			10/07/2020 00:03	Madeline Gruver	2199318
	10/01/2020			10/07/2020 00:13	Madeline Gruver	2199325
	10/01/2020			10/07/2020 00:24	Madeline Gruver	2199326
	10/01/2020			10/07/2020 00:39	Madeline Gruver	2199327