

Chemical Analysis Report

SE-DIST-2020-12-15-01

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

Event Description: **SMP- Miami 2020 4th trip**
Request ID: **RQ-2020-10-19-24**
Customer: **SE-DIST**
Project ID: **SMP**

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

Date Certified: 11-JAN-2021 10:21



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Hazel Street East Key A

Collection Date/Time: 12/14/2020 11:30

Field ID: G4SE0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2213286	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P391261	
	EPA 300.0 Rev. 2.1	Bromide	29		mg Br/L	P391328	
	SM 2320 B-2011	Total Alkalinity	162		mg CaCO3/L	P391318	
	SM 2540 D-2011	TSS	3	U	mg/L	P391642	
	SM 4500 F-C-2011	Fluoride	0.64		mg F/L	P391321	
2213288	EPA 350.1 Rev. 2.0	Ammonia-N	0.089		mg N/L	P391715	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P391706	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P391400	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U	mg P/L	P391615	
	SM 5310 B-2011	Organic Carbon	5.6		mg C/L	P391368	
2213290	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391220	
2213308	EPA 200.7 Rev. 4.4	Chromium	6.7	I	ug/L	P391276	
		Iron	90	U	ug/L	P391276	
		Manganese	3.0	U	ug/L	P391276	
		Zinc	15	U	ug/L	P391276	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P391276	
		Antimony	0.20	U	ug/L	P391276	
		Arsenic	1.12		ug/L	P391276	
		Cadmium	0.080	U	ug/L	P391276	
		Copper	1.6	U	ug/L	P391276	
		Lead	2.0	U	ug/L	P391276	
		Nickel	2.0	U	ug/L	P391276	
		Selenium	0.80	U	ug/L	P391276	
		Silver	0.040	U	ug/L	P391276	
		Thallium	1.0	U	ug/L	P391276	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Pelican Cay Key A

Collection Date/Time: 12/14/2020 12:00

Field ID: G4SE0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2213287	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P391261	
	EPA 300.0 Rev. 2.1	Bromide	27		mg Br/L	P391328	
	SM 2320 B-2011	Total Alkalinity	168		mg CaCO3/L	P391318	
	SM 2540 D-2011	TSS	3	UA	mg/L	P391643	
	SM 4500 F-C-2011	Fluoride	0.61		mg F/L	P391321	
2213289	EPA 350.1 Rev. 2.0	Ammonia-N	0.092		mg N/L	P391715	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P391706	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P391400	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P391615	
	SM 5310 B-2011	Organic Carbon	5.8		mg C/L	P391368	
2213291	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391220	
2213309	EPA 200.7 Rev. 4.4	Chromium	7.0	I	ug/L	P391276	
		Iron	90	U	ug/L	P391276	
		Manganese	3.0	U	ug/L	P391276	
		Zinc	15	U	ug/L	P391276	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P391276	
		Antimony	0.20	U	ug/L	P391276	
		Arsenic	1.02		ug/L	P391276	
		Cadmium	0.080	U	ug/L	P391276	
		Copper	1.6	U	ug/L	P391276	
		Lead	2.0	U	ug/L	P391276	
		Nickel	2.0	U	ug/L	P391276	
		Selenium	0.80	U	ug/L	P391276	
		Silver	0.040	U	ug/L	P391276	
		Thallium	1.0	U	ug/L	P391276	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: FB_O121420

Collection Date/Time: 12/14/2020 12:15

Field ID: FB_121420

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2213292	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P391261	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P391328	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P391317	
	SM 2540 D-2011	TSS	2	U	mg/L	P391641	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P391320	
2213293	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P391489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P391650	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391256	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P391687	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P391366	
2213294	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391224	
2213310	EPA 200.7 Rev. 4.4	Chromium	1.0	U	ug/L	P391276	
		Iron	30	U	ug/L	P391276	
		Manganese	1.0	U	ug/L	P391276	
		Zinc	5.0	U	ug/L	P391276	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P391276	
		Antimony	0.050	U	ug/L	P391276	
		Arsenic	0.050	U	ug/L	P391276	
		Cadmium	0.020	U	ug/L	P391276	
		Copper	0.40	U	ug/L	P391276	
		Lead	0.20	U	ug/L	P391276	
		Nickel	0.50	U	ug/L	P391276	
		Selenium	0.20	U	ug/L	P391276	
		Silver	0.010	U	ug/L	P391276	
		Thallium	0.10	U	ug/L	P391276	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: C-111 West

Collection Date/Time: 12/14/2020 13:14

Field ID: G4SE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2213283	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P391261	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P391347	
		Sulfate	1.9		mg SO4/L	P391349	
	SM 2120 B-2011	Color (true)	36	A	PCU	P391194	
	SM 2320 B-2011	Total Alkalinity	180		mg CaCO3/L	P391317	
	SM 2540 C-2011	TDS	253		mg/L	P391664	
	SM 2540 D-2011	TSS	5	I	mg/L	P391638	
	SM 4500 F-C-2011	Fluoride	0.18		mg F/L	P391320	
2213284	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P391489	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P391650	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P391256	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P391687	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P391366	
2213285	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391224	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391261

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P391276

Component	Result	Code	Units
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391276

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	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: P391328

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391347

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391349

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391489

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: P391715

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391650

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391706

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391256

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391400

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391615

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391220

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391224

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P391194

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391317

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

Reference Method: SM 2320 B-2011
Batch ID: P391318

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

Reference Method: SM 2540 C-2011
Batch ID: P391664

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391638

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391641

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391642

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391643

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391320

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P391321

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391366

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

Reference Method: SM 5310 B-2011
Batch ID: P391368

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: P391276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	102		P	85 - 115
Iron	105		P	85 - 115
Manganese	105		P	85 - 115
Zinc	97.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.2		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	98.6		P	85 - 115
Cadmium	96.5		P	85 - 115
Copper	93.4		P	85 - 115
Lead	103		P	85 - 115
Nickel	92.6		P	85 - 115
Selenium	94.7		P	85 - 115
Silver	103		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391328

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391347

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391349

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391489

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391715

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391650

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391706

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391400

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: P391615

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: P391687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391220

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391224

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

Reference Method: SM 2120 B-2011
Batch ID: P391194

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P391317

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P391318

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

Reference Method: SM 4500 F-C-2011
Batch ID: P391320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P391321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.7		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P391368

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: P391276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213309	Chromium	93.2	92.0	P/P	70 - 130
2213309	Iron	103	104	P/P	70 - 130
2213309	Manganese	98.2	100	P/P	70 - 130
2213309	Zinc	90.1	91.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213309	Aluminum	106	106	P/P	70 - 130
2213309	Antimony	110	112	P/P	70 - 130
2213309	Arsenic	108	109	P/P	70 - 130
2213309	Cadmium	94.4	93.6	P/P	70 - 130
2213309	Copper	117	119	P/P	70 - 130
2213309	Lead	109	110	P/P	70 - 130
2213309	Nickel	105	107	P/P	70 - 130
2213309	Selenium	100	102	P/P	70 - 130
2213309	Silver	94.5	94.8	P/P	70 - 130
2213309	Thallium	106	108	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213031	Bromide	101	101	P/P	90 - 110
2213032	Bromide	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213228	Chloride	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213228	Sulfate	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213318	Ammonia-N	97.6	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213363	Ammonia-N	98.6	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213284	Kjeldahl Nitrogen	97.1	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213261	NO2NO3-N	96.2	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213208	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213113	Total-P	93.4	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213284	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213122	O-Phosphate-P	98.9	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213250	O-Phosphate-P	104	105	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213233	Fluoride	97.3	97.3	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P391321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213109	Fluoride	99.6	100	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P391366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213092	Organic Carbon	102	101	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P391368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213117	Organic Carbon	99.4	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213255	Turbidity	6.98	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P391276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213309	Chromium	1.19	Spike	P	0 - 20
2213309	Iron	1.44	Spike	P	0 - 20
2213309	Manganese	1.73	Spike	P	0 - 20
2213309	Zinc	1.08	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P391276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213309	Aluminum	0.711	Spike	P	0 - 20
2213309	Antimony	2.39	Spike	P	0 - 20
2213309	Arsenic	1.15	Spike	P	0 - 20
2213309	Cadmium	0.878	Spike	P	0 - 20
2213309	Copper	1.78	Spike	P	0 - 20
2213309	Lead	1.05	Spike	P	0 - 20
2213309	Nickel	1.61	Spike	P	0 - 20
2213309	Selenium	1.36	Spike	P	0 - 20
2213309	Silver	0.275	Spike	P	0 - 20
2213309	Thallium	2.20	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213031	Bromide	0.0591	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213228	Chloride	0.587	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213228	Sulfate	0.489	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213318	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213363	Ammonia-N	1.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213284	Kjeldahl Nitrogen	2.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213733	Kjeldahl Nitrogen	7.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213261	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213208	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213113	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213284	Total-P	0.243	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213122	O-Phosphate-P	0.0968	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213250	O-Phosphate-P	0.669	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P391194

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213283	Color (true)	0.599	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213233	Total Alkalinity	1.87	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P391318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213109	Total Alkalinity	2.98	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213172	TDS	2.90	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213233	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P391321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213109	Fluoride	0.457	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P391366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213092	Organic Carbon	0.609	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P391368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213117	Organic Carbon	0.129	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A102597

Included Lab Sample IDs: 2213283

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102606

Included Lab Sample IDs: 2213290, 2213291

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102610

Included Lab Sample IDs: 2213285, 2213294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.9	P/P	90 - 110
O-Phosphate-P	98.9	99.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102613

Included Lab Sample IDs: 2213286, 2213287, 2213292

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102615

Included Lab Sample IDs: 2213284, 2213293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102617

Included Lab Sample IDs: 2213283

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102618

Included Lab Sample IDs: 2213283, 2213286, 2213287, 2213292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	104	104	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A102634

Included Lab Sample IDs: 2213283, 2213286, 2213287, 2213292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A102634

Included Lab Sample IDs: 2213283, 2213286, 2213287, 2213292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	103	P/P	90 - 110
Total Alkalinity	98.3	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102634

Included Lab Sample IDs: 2213283, 2213286, 2213287, 2213292

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	100	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102649

Included Lab Sample IDs: 2213284, 2213288, 2213289, 2213293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	102	P/P	90 - 110
Organic Carbon	97.4	97.7	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102653

Included Lab Sample IDs: 2213308, 2213309, 2213310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.7	99.2	P/P	95 - 105
Chromium	99.2	95.6	P/P	90 - 110
Iron	100	100	P/P	95 - 105
Iron	100	100	P/P	90 - 110
Manganese	102	103	P/P	95 - 105
Manganese	103	102	P/P	90 - 110
Zinc	96.5	91.4	P/P	90 - 110
Zinc	98.6	96.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102660

Included Lab Sample IDs: 2213288, 2213289

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102686

Included Lab Sample IDs: 2213284, 2213293

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102764

Included Lab Sample IDs: 2213288, 2213289

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102770

Included Lab Sample IDs: 2213284, 2213293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	97.8	P/P	90 - 110
Kjeldahl Nitrogen	97.8	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102771

Included Lab Sample IDs: 2213288, 2213289

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.7	P/P	90 - 110
Ammonia-N	99.7	99.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102772

Included Lab Sample IDs: 2213308, 2213309, 2213310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	104	P/P	90 - 110
Aluminum	96.0	100	P/P	90 - 110
Antimony	100	100	P/P	90 - 110
Antimony	100	103	P/P	90 - 110
Arsenic	98.4	100	P/P	90 - 110
Arsenic	99.2	98.4	P/P	90 - 110
Cadmium	96.9	97.2	P/P	90 - 110
Cadmium	97.2	98.3	P/P	90 - 110
Copper	93.3	98.2	P/P	90 - 110
Copper	98.2	103	P/P	90 - 110
Lead	101	99.9	P/P	90 - 110
Lead	99.9	100	P/P	90 - 110
Nickel	92.2	95.1	P/P	90 - 110
Nickel	95.1	97.9	P/P	90 - 110
Selenium	95.7	99.2	P/P	90 - 110
Selenium	97.4	95.7	P/P	90 - 110
Thallium	102	102	P/P	90 - 110
Thallium	102	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102795

Included Lab Sample IDs: 2213308, 2213309, 2213310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	96.9	96.8	P/P	90 - 110
Silver	97.8	96.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102799

Included Lab Sample IDs: 2213284, 2213293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.2	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102804

Included Lab Sample IDs: 2213288, 2213289

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	98.9	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					6.98	
EPA 200.7 Rev. 4.4	Chromium	102	92.0	93.2			1.19
	Iron	105	103	104			1.44
	Manganese	105	98.2	100			1.73
	Zinc	97.6	90.1	91.1			1.08
EPA 200.8 Rev. 5.4	Aluminum	95.2	106	106			0.711
	Antimony	102	110	112			2.39
	Arsenic	98.6	108	109			1.15
	Cadmium	96.5	94.4	93.6			0.878
	Copper	93.4	117	119			1.78
	Lead	103	109	110			1.05
	Nickel	92.6	105	107			1.61
	Selenium	94.7	100	102			1.36
	Silver	103	94.5	94.8			0.275
	Thallium	102	106	108			2.20
EPA 300.0 Rev. 2.1	Bromide	101	101	101	97.6		0.0591
	Chloride	101	100	101			0.587
	Sulfate	101	100	101			0.489
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	97.6	96.0			1.45
	Ammonia-N	96.8	98.6	100			1.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.1	102			2.64
	Kjeldahl Nitrogen	98.0					7.51
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	96.2	95.6			0.491
	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	101	93.4	94.6			1.26
	Total-P	104	101	101			0.243
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.9	98.8			0.0968
	O-Phosphate-P	100	104	105			0.669
SM 2120 B-2011	Color (true)	100				0.599	
SM 2320 B-2011	Total Alkalinity	102				1.87	
	Total Alkalinity	103				2.98	
SM 2540 C-2011	TDS					2.90	
SM 4500 F-C-2011	Fluoride	97.8	97.3	97.3			0.0
	Fluoride	98.2	99.6	100			0.457
SM 5310 B-2011	Organic Carbon	99.7	102	101			0.609
	Organic Carbon	100	99.4	99.6			0.129

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2213283, 2213286, 2213287, 2213292
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2213308, 2213309, 2213310
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2213308, 2213309, 2213310
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2213286, 2213287, 2213292
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2213283
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2213283
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2213284, 2213288, 2213289, 2213293
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2213284, 2213288, 2213289, 2213293
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2213284, 2213288, 2213289, 2213293
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2213284, 2213288, 2213289, 2213293

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2213285, 2213290, 2213291, 2213294
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2213283
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2213283, 2213286, 2213287, 2213292
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2213283
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2213283, 2213286, 2213287, 2213292
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2213283, 2213286, 2213287, 2213292
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2213284, 2213288, 2213289, 2213293

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	12/15/2020			12/15/2020 17:13	Yen Ta	2213283, 2213286, 2213287, 2213292
EPA 200.7 Rev. 4.4	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 14:55	Betina Topolski	2213310
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 16:18	Betina Topolski	2213308
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 16:26	Betina Topolski	2213309
EPA 200.8 Rev. 5.4	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 21:27	Alexander Thompson	2213310
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 22:04	Alexander Thompson	2213309
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 23:03	Alexander Thompson	2213308
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 23:33	Alexander Thompson	2213308
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 23:41	Alexander Thompson	2213309
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 10:56	Alexander Thompson	2213310
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 11:34	Alexander Thompson	2213308
	12/15/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 11:39	Alexander Thompson	2213309
EPA 300.0 Rev. 2.1	12/15/2020			12/16/2020 21:18	Lipi Saha	2213286
	12/15/2020			12/16/2020 21:36	Lipi Saha	2213287
	12/15/2020			12/16/2020 21:54	Lipi Saha	2213292
	12/15/2020			12/16/2020 23:55	Lipi Saha	2213283
EPA 350.1 Rev. 2.0	12/15/2020			12/20/2020 18:08	Ping Hua	2213284
	12/15/2020			12/20/2020 18:09	Ping Hua	2213293
	12/15/2020			12/23/2020 16:57	Ping Hua	2213288
	12/15/2020			12/23/2020 17:05	Ping Hua	2213289
EPA 351.2 Rev. 2.0	12/15/2020	12/22/2020 14:35	David Boose	12/23/2020 17:01	Julia Storbeck	2213284
	12/15/2020	12/22/2020 14:35	David Boose	12/23/2020 17:18	Julia Storbeck	2213293
	12/15/2020	12/23/2020 14:55	David Boose	12/28/2020 16:49	Julia Storbeck	2213288
	12/15/2020	12/23/2020 14:55	David Boose	12/28/2020 16:51	Julia Storbeck	2213289
EPA 353.2 Rev. 2.0	12/15/2020			12/16/2020 09:50	Beverly Y. Sanders	2213284
	12/15/2020			12/16/2020 09:51	Beverly Y. Sanders	2213293
	12/15/2020			12/18/2020 10:03	Beverly Y. Sanders	2213288
	12/15/2020			12/18/2020 10:04	Beverly Y. Sanders	2213289
EPA 365.1 Rev. 2.0	12/15/2020	12/22/2020 13:26	Yen Ta	12/23/2020 13:49	Shengyu Wang	2213288
	12/15/2020	12/22/2020 13:26	Yen Ta	12/23/2020 13:50	Shengyu Wang	2213289
	12/15/2020	12/23/2020 10:14	Yen Ta	12/28/2020 12:37	Shengyu Wang	2213284
	12/15/2020	12/23/2020 10:14	Yen Ta	12/28/2020 13:11	Shengyu Wang	2213293
EPA 365.1 Rev. 2.0 dissolved	12/15/2020			12/15/2020 15:15	Blanca Fach	2213290, 2213291
	12/15/2020			12/15/2020 16:41	Blanca Fach	2213285
	12/15/2020			12/15/2020 16:51	Blanca Fach	2213294
SM 2120 B-2011	12/15/2020			12/15/2020 17:34	Julia Storbeck	2213283
SM 2320 B-2011	12/15/2020			12/16/2020 19:38	Dale L. Simmons	2213283
	12/15/2020			12/16/2020 19:46	Dale L. Simmons	2213292
	12/15/2020			12/17/2020 02:39	Dale L. Simmons	2213286
	12/15/2020			12/17/2020 02:51	Dale L. Simmons	2213287

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2011	12/15/2020			12/18/2020 15:11	Yijie Li	2213283
SM 2540 D-2011	12/15/2020			12/18/2020 15:11	Yijie Li	2213283, 2213286, 2213287, 2213292
SM 4500 F-C-2011	12/15/2020			12/16/2020 19:38	Dale L. Simmons	2213283
	12/15/2020			12/16/2020 19:46	Dale L. Simmons	2213292
	12/15/2020			12/17/2020 00:31	Dale L. Simmons	2213286
	12/15/2020			12/17/2020 00:36	Dale L. Simmons	2213287
SM 5310 B-2011	12/15/2020			12/16/2020 21:11	Touraj Touran	2213284
	12/15/2020			12/16/2020 21:23	Touraj Touran	2213293
	12/15/2020			12/17/2020 03:12	Touraj Touran	2213288
	12/15/2020			12/17/2020 03:25	Touraj Touran	2213289