

Chemical Analysis Report

SE-DIST-2020-12-11-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

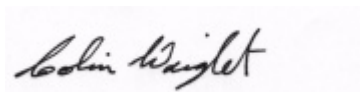
Event Description: **SMP- Miami 2020 3rd Trip**
Request ID: **RQ-2020-10-19-23**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-JAN-2021 11:29



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: 12/10/2020 11:30

Field ID: G4SE0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212395	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P391053	
	EPA 300.0 Rev. 2.1	Bromide	35		mg Br/L	P391241	
	SM 2320 B-2011	Total Alkalinity	157	A	mg CaCO3/L	P391137	
	SM 2540 D-2011	TSS	3	U	mg/L	P391530	
	SM 4500 F-C-2011	Fluoride	0.73		mg F/L	P391139	
2212397	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P391491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P391645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P391399	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P391108	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P391174	
2212399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391051	
2212411	EPA 200.7 Rev. 4.4	Chromium	7.6	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	1.17		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:

EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference and matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Pelican Cay Key A

Collection Date/Time: 12/10/2020 12:00

Field ID: G4SE0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212396	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P391053	
	EPA 300.0 Rev. 2.1	Bromide	35		mg Br/L	P391241	
	SM 2320 B-2011	Total Alkalinity	158		mg CaCO3/L	P391137	
	SM 2540 D-2011	TSS	3	U	mg/L	P391530	
	SM 4500 F-C-2011	Fluoride	0.74		mg F/L	P391139	
2212398	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P391491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P391454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P391399	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P391108	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P391174	
2212400	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391051	
2212412	EPA 200.7 Rev. 4.4	Chromium	8.1	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	1.15		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:

EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference and matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: FB 121020

Collection Date/Time: 12/10/2020 12:15

Field ID: FB 121020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212401	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P391053	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P391241	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P391136	
	SM 2540 D-2011	TSS	2	U	mg/L	P391526	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P391138	
2212402	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P391451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391152	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P391279	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P391173	
2212403	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391050	
2212413	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:

EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference and matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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: C-111 West

Collection Date/Time: 12/10/2020 13:30

Field ID: G4SE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212392	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P391053	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P391258	
		Sulfate	1.8		mg SO4/L	P391259	
	SM 2120 B-2011	Color (true)	31		PCU	P391047	
	SM 2320 B-2011	Total Alkalinity	179		mg CaCO3/L	P391136	
	SM 2540 C-2011	TDS	250		mg/L	P391521	
	SM 2540 D-2011	TSS	5	I	mg/L	P391525	
	SM 4500 F-C-2011	Fluoride	0.18		mg F/L	P391138	
2212393	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P391451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P391152	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P391173	
2212394	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391050	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391053

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: P391241

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391258

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

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: P391491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391454

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391152

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391399

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391279

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391050

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391051

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

Reference Method: SM 2120 B-2011
Batch ID: P391047

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P391136

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

Reference Method: SM 2320 B-2011
Batch ID: P391137

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

Reference Method: SM 2540 C-2011
Batch ID: P391521

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391525

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391526

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391530

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P391138

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391139

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391173

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

Reference Method: SM 5310 B-2011
Batch ID: P391174

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: P391241

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391258

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391454

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391152

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: P391399

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: P391108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391279

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391050

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391051

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

Reference Method: SM 2120 B-2011
Batch ID: P391047

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

Reference Method: SM 2320 B-2011
Batch ID: P391136

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

Reference Method: SM 2320 B-2011
Batch ID: P391137

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

Reference Method: SM 4500 F-C-2011
Batch ID: P391138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P391139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P391174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		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: P391258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212333	Chloride	100		P	90 - 110
2212500	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P391259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212333	Sulfate	101		P	90 - 110
2212500	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212353	Ammonia-N	97.6	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212278	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212398	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212280	Kjeldahl Nitrogen	97.7	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212383	NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212397	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212279	Total-P	96.4	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212346	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212434	Total-P	99.3	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212394	O-Phosphate-P	99.1	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212399	O-Phosphate-P	99.5	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P391138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212431	Fluoride	98.4	98.4	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P391139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212395	Fluoride	103	104	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P391173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212351	Organic Carbon	110	110	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P391174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212274	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212382	Turbidity	3.16	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: P391258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212333	Chloride	0.930	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212353	Ammonia-N	0.951	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212278	Ammonia-N	0.766	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212492	Kjeldahl Nitrogen	3.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212398	Kjeldahl Nitrogen	0.325	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212280	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212383	NO2NO3-N	0.619	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212397	NO2NO3-N	0.387	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212279	Total-P	0.964	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212346	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212434	Total-P	0.198	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212394	O-Phosphate-P	0.302	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212399	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P391047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212382	Color (true)	2.29	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P391136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212431	Total Alkalinity	1.03	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P391137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212395	Total Alkalinity	1.88	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P391521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211734	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212431	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P391139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212395	Fluoride	0.946	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P391173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212351	Organic Carbon	0.0271	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P391174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212274	Organic Carbon	0.372	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: A102543

Included Lab Sample IDs: 2212392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102545

Included Lab Sample IDs: 2212392, 2212395, 2212396, 2212401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102546

Included Lab Sample IDs: 2212394, 2212399, 2212400, 2212403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.0	P/P	90 - 110
O-Phosphate-P	99.0	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102580

Included Lab Sample IDs: 2212392, 2212395, 2212396, 2212401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.9	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102580

Included Lab Sample IDs: 2212392, 2212395, 2212396, 2212401

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	102	P/P	90 - 110
Fluoride	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102586

Included Lab Sample IDs: 2212393, 2212402

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

Reference Method: SM 5310 B-2011

Run ID: A102590

Included Lab Sample IDs: 2212393, 2212397, 2212398, 2212402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	107	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102613

Included Lab Sample IDs: 2212395, 2212396, 2212401

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102617

Included Lab Sample IDs: 2212392

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102647

Included Lab Sample IDs: 2212402

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102653

Included Lab Sample IDs: 2212411, 2212412, 2212413

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102660

Included Lab Sample IDs: 2212397, 2212398

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102672

Included Lab Sample IDs: 2212393, 2212397, 2212398

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102685

Included Lab Sample IDs: 2212393, 2212402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.5	P/P	90 - 110
Ammonia-N	99.9	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102686

Included Lab Sample IDs: 2212397, 2212398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102694

Included Lab Sample IDs: 2212393, 2212398, 2212402

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	98.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102770

Included Lab Sample IDs: 2212397

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102772

Included Lab Sample IDs: 2212411, 2212412, 2212413

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: 2212411, 2212412, 2212413

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

* 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					3.16	
EPA 200.7 Rev. 4.4	Chromium	102	93.2	92.0			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	102					
	Chloride	102	100	99.7		0.930	
	Sulfate	102	101	101			
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	97.6	98.8			0.951
	Ammonia-N	97.4	105	106			0.766
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102					3.98
	Kjeldahl Nitrogen	96.9	104	103			0.325
	Kjeldahl Nitrogen	97.1	97.7	94.5			3.00
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.5	97.5			0.619
	NO2NO3-N	102	102	101			0.387
EPA 365.1 Rev. 2.0	Total-P	103	96.4	95.5			0.964
	Total-P	103	104	102			1.61
	Total-P	99.5	99.3	99.5			0.198
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.1	99.4			0.302
	O-Phosphate-P	101	99.5	99.5			0.0
SM 2120 B-2011	Color (true)	100				2.29	
SM 2320 B-2011	Total Alkalinity	103				1.03	
	Total Alkalinity	103				1.88	
SM 2540 C-2011	TDS					0.0	
SM 4500 F-C-2011	Fluoride	98.8	98.4	98.4			0.0
	Fluoride	102	103	104			0.946
SM 5310 B-2011	Organic Carbon	104	110	110			0.0271
	Organic Carbon	106	101	101			0.372

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2212392, 2212395, 2212396, 2212401
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2212411, 2212412, 2212413
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2212411, 2212412, 2212413
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2212395, 2212396, 2212401
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2212392
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2212392
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2212393, 2212397, 2212398, 2212402
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2212393, 2212397, 2212398, 2212402
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2212393, 2212397, 2212398, 2212402

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2212393, 2212397, 2212398, 2212402
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2212394, 2212399, 2212400, 2212403
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2212392
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2212392, 2212395, 2212396, 2212401
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2212392
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2212392, 2212395, 2212396, 2212401
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2212392, 2212395, 2212396, 2212401
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2212393, 2212397, 2212398, 2212402

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	12/11/2020			12/11/2020 14:53	Yen Ta	2212392, 2212395, 2212396, 2212401
EPA 200.7 Rev. 4.4	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 14:42	Betina Topolski	2212413
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 15:27	Betina Topolski	2212411
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/17/2020 15:34	Betina Topolski	2212412
EPA 200.8 Rev. 5.4	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 21:19	Alexander Thompson	2212413
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 21:56	Alexander Thompson	2212411
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 22:49	Alexander Thompson	2212412
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 23:11	Alexander Thompson	2212411
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/23/2020 23:18	Alexander Thompson	2212412
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 10:52	Alexander Thompson	2212413
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 11:22	Alexander Thompson	2212411
	12/11/2020	12/16/2020 13:10	Elliott D. Healy	12/28/2020 11:26	Alexander Thompson	2212412
EPA 300.0 Rev. 2.1	12/11/2020			12/15/2020 23:37	Lipi Saha	2212395
	12/11/2020			12/15/2020 23:55	Lipi Saha	2212396
	12/11/2020			12/16/2020 00:00	Lipi Saha	2212392
	12/11/2020			12/16/2020 00:13	Lipi Saha	2212401
EPA 350.1 Rev. 2.0	12/11/2020			12/20/2020 09:39	Ping Hua	2212393
	12/11/2020			12/20/2020 10:53	Ping Hua	2212402
	12/11/2020			12/20/2020 19:53	Ping Hua	2212397
	12/11/2020			12/20/2020 19:55	Ping Hua	2212398
EPA 351.2 Rev. 2.0	12/11/2020	12/18/2020 10:54	David Boose	12/20/2020 18:40	Julia Storbeck	2212393
	12/11/2020	12/18/2020 10:54	David Boose	12/20/2020 18:42	Julia Storbeck	2212402
	12/11/2020	12/18/2020 10:54	David Boose	12/20/2020 19:00	Julia Storbeck	2212398
	12/11/2020	12/22/2020 14:29	David Boose	12/23/2020 15:55	Julia Storbeck	2212397
EPA 353.2 Rev. 2.0	12/11/2020			12/15/2020 09:59	Beverly Y. Sanders	2212393
	12/11/2020			12/15/2020 10:00	Beverly Y. Sanders	2212402
	12/11/2020			12/18/2020 09:35	Beverly Y. Sanders	2212397
	12/11/2020			12/18/2020 09:41	Beverly Y. Sanders	2212398
EPA 365.1 Rev. 2.0	12/11/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:31	Shengyu Wang	2212397
	12/11/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:32	Shengyu Wang	2212398
	12/11/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:47	Shengyu Wang	2212393
	12/11/2020	12/16/2020 09:33	Shengyu Wang	12/17/2020 14:24	Shengyu Wang	2212402
EPA 365.1 Rev. 2.0 dissolved	12/11/2020			12/11/2020 15:45	Ping Hua	2212394
	12/11/2020			12/11/2020 15:49	Ping Hua	2212403
	12/11/2020			12/11/2020 16:02	Ping Hua	2212399
	12/11/2020			12/11/2020 16:04	Ping Hua	2212400
SM 2120 B-2011	12/11/2020			12/11/2020 15:46	Benjamin T. Nordmann	2212392
SM 2320 B-2011	12/11/2020			12/14/2020 17:45	Dale L. Simmons	2212392
	12/11/2020			12/14/2020 17:54	Dale L. Simmons	2212401
	12/11/2020			12/14/2020 23:27	Dale L. Simmons	2212395

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	12/11/2020			12/14/2020 23:40	Dale L. Simmons	2212396
SM 2540 C-2011	12/11/2020			12/14/2020 14:56	Yijie Li	2212392
SM 2540 D-2011	12/11/2020			12/14/2020 15:56	Yijie Li	2212392, 2212395, 2212396, 2212401
SM 4500 F-C-2011	12/11/2020			12/14/2020 17:45	Dale L. Simmons	2212392
	12/11/2020			12/14/2020 17:54	Dale L. Simmons	2212401
	12/11/2020			12/14/2020 22:04	Dale L. Simmons	2212395
	12/11/2020			12/14/2020 22:17	Dale L. Simmons	2212396
	12/11/2020			12/15/2020 03:36	Touraj Touran	2212393
SM 5310 B-2011	12/11/2020			12/15/2020 03:48	Touraj Touran	2212402
	12/11/2020			12/15/2020 08:21	Touraj Touran	2212397
	12/11/2020			12/15/2020 08:33	Touraj Touran	2212398