

Chemical Analysis Report

NW-DIST-2020-08-11-02

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

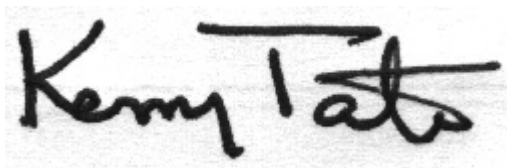
Event Description: **Bay Walton County Run**
Request ID: **RQ-2020-08-10-40**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
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Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-SEP-2020 11:34

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

NON-CONFORMANCE REPORT INCLUDED

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: Little Black Creek Upstream of Black Creek

Collection Date/Time: 08/10/2020 10:48

Field ID: G3NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189529	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P385912	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P386273	
		Sulfate	1.5		mg SO4/L	P386277	
	SM 2120 B-2011	Color (true)	160		PCU	P385923	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P386228	
	SM 2540 C-2011	TDS	41		mg/L	P386183	
	SM 2540 D-2011	TSS	3	I	mg/L	P386224	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P385994	
2189531	EPA 350.1 Rev. 2.0	Ammonia-N	0.009	Y	mg N/L	P386086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	Y	mg N/L	P386142	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P385938	
	EPA 365.1 Rev. 2.0	Total-P	0.010	Y	mg P/L	P385986	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P385980	
2189533	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385919	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Sample was left out at room temperature overnight, should be stored below 6 degC.

EPA 351.2 Rev. 2.0: Sample was left out at room temperature overnight, should be stored below 6 degC.

EPA 365.1 Rev. 2.0: Total-P: Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Black Creek Upstream of Hwy 20

Collection Date/Time: 08/10/2020 11:04

Field ID: G3NW0148

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189530	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P385912	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P386273	
		Sulfate	1.5		mg SO4/L	P386277	
	SM 2120 B-2011	Color (true)	160		PCU	P385923	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P386228	
	SM 2540 C-2011	TDS	35		mg/L	P386183	
	SM 2540 D-2011	TSS	3	I	mg/L	P386224	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P385994	
2189532	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P386086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P385978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P385939	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P385986	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P386258	
2189534	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385920	

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: Pine Log Creek Upstream of Hwy 79

Collection Date/Time: 08/10/2020 11:33

Field ID: G3NW0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189526	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P385912	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P386273	
		Sulfate	0.91		mg SO4/L	P386277	
		Color (true)	130		PCU	P385923	
	SM 2320 B-2011	Total Alkalinity	5.2		mg CaCO3/L	P386228	
	SM 2540 C-2011	TDS	43		mg/L	P386182	
	SM 2540 D-2011	TSS	2	I	mg/L	P386223	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P385994	
2189527	EPA 350.1 Rev. 2.0	Ammonia-N	0.014	Y	mg N/L	P386086	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	Y	mg N/L	P386142	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P385938	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P385942	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P385980	
2189528	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385919	
2189563	EPA 200.7 Rev. 4.4	Barium	5.9		ug/L	P385910	
		Calcium	3.65		mg/L	P385910	
		Iron	330		ug/L	P385910	
		Magnesium	0.48		mg/L	P385910	
		Potassium	0.30	U	mg/L	P385910	
		Sodium	1.6	I	mg/L	P385910	
		Zinc	5.0	U	ug/L	P385910	
	EPA 200.8 Rev. 5.4	Aluminum	197		ug/L	P385910	
		Antimony	0.050	U	ug/L	P385910	
		Arsenic	0.29		ug/L	P385910	
		Boron**	10.2		ug/L	P385910	
		Cadmium	0.020	U	ug/L	P385910	
		Chromium	0.40	U	ug/L	P385910	
		Copper	0.40	U	ug/L	P385910	
		Lead	0.20	U	ug/L	P385910	
		Nickel	0.50	U	ug/L	P385910	
		Selenium	0.20	U	ug/L	P385910	
		Silver	0.010	U	ug/L	P385910	
		Thallium	0.10	U	ug/L	P385910	
		Hardness	11.1		mg/L	P385910	
	SM 2340B						

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Sample was left out at room temperature overnight, should be stored below 6 degC.

EPA 351.2 Rev. 2.0: Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Eagle Creek Upstream of Hwy 20

Collection Date/Time: 08/10/2020 12:27

Field ID: G3NW0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2189535	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P385912	
	EPA 300.0 Rev. 2.1	Bromide	0.018	I	mg Br/L	P386267	
		Chloride	5.2		mg Cl/L	P386273	
		Sulfate	1.1		mg SO4/L	P386277	
	SM 2120 B-2011	Color (true)	71	A	PCU	P385924	
	SM 2320 B-2011	Total Alkalinity	0.86	I	mg CaCO3/L	P386228	
	SM 2540 C-2011	TDS	29		mg/L	P386183	
	SM 2540 D-2011	TSS	3	I	mg/L	P386224	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P385994	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P386086	
2189536	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P385978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P385939	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P385986	
	SM 5310 B-2011	Organic Carbon	5.2		mg C/L	P386258	
2189537	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P385920	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 8391

Event(s)

NW-DIST-2020-08-11-02
NW-DIST-2020-08-11-02

Job(s)

TLH-2020-08-11-42
TLH-2020-08-11-42

Sample(s)

2189527
2189531

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Samples were not stored in refrigerator overnight on 08/12/2020.

Resolution: Samples were returned to refrigerator at 10:15 am on 08/13/2020. Data will be qualified as appropriate.

Authorized by/Date: Irina Carbone 9/1/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385912

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P385910

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: P385910

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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: P386267

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386273

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386277

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386086

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385938

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385942

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385986

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385920

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: P385923

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P385924

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P386228

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

Reference Method: SM 2540 C-2011
Batch ID: P386182

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P386183

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386223

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P386224

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P385994

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P385980

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P386258

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: P385910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	104		P	85 - 115
Iron	104		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	104		P	85 - 115
Sodium	102		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P385910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	102		P	85 - 115
Boron	100		P	85 - 115
Cadmium	106		P	85 - 115
Chromium	102		P	85 - 115
Copper	106		P	85 - 115
Lead	108		P	85 - 115
Nickel	105		P	85 - 115
Selenium	100		P	85 - 115
Silver	107		P	85 - 115
Thallium	107		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386273

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386277

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386086

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385978

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: P386142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385938

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385939

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385942

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385986

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385919

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385920

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

Reference Method: SM 2120 B-2011
Batch ID: P385923

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P385924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P386228

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P385994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P385980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P386258

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P385910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189410	Barium	103	103	P/P	80 - 120
2189410	Calcium	104		P	80 - 120
2189410	Iron	104	106	P/P	80 - 120
2189410	Magnesium	106		P	80 - 120
2189410	Potassium	103	104	P/P	80 - 120
2189410	Sodium	103		P	80 - 120
2189410	Zinc	105	105	P/P	80 - 120
2189491	Barium	98.7		P	80 - 120
2189491	Calcium	105		P	80 - 120
2189491	Iron	103		P	80 - 120
2189491	Magnesium	102		P	80 - 120
2189491	Potassium	101		P	80 - 120
2189491	Sodium	103		P	80 - 120
2189491	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P385910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189410	Aluminum	97.0	100	P/P	80 - 120
2189410	Antimony	103	107	P/P	80 - 120
2189410	Arsenic	101	103	P/P	80 - 120
2189410	Boron	100	104	P/P	80 - 120
2189410	Cadmium	103	107	P/P	80 - 120
2189410	Chromium	104	106	P/P	80 - 120
2189410	Copper	103	104	P/P	80 - 120
2189410	Lead	108	111	P/P	80 - 120
2189410	Nickel	100	105	P/P	80 - 120
2189410	Selenium	97.5	101	P/P	80 - 120
2189410	Silver	103	105	P/P	80 - 120
2189410	Thallium	108	112	P/P	80 - 120
2189491	Aluminum	101		P	80 - 120
2189491	Antimony	105		P	80 - 120
2189491	Arsenic	101		P	80 - 120
2189491	Boron	103		P	80 - 120
2189491	Cadmium	106		P	80 - 120
2189491	Chromium	105		P	80 - 120
2189491	Copper	104		P	80 - 120
2189491	Lead	110		P	80 - 120
2189491	Nickel	103		P	80 - 120
2189491	Selenium	96.5		P	80 - 120
2189491	Silver	107		P	80 - 120
2189491	Thallium	108		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2188924	Bromide	105	104	P/P	90 - 110
2189535	Bromide	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189370	Chloride	98.8		P	90 - 110
2189507	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189370	Sulfate	100		P	90 - 110
2189507	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189572	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189164	Kjeldahl Nitrogen	108	110	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189685	Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189464	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189536	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189464	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189688	Total-P	102	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189506	O-Phosphate-P	98.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189534	O-Phosphate-P	98.8	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P385994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189516	Fluoride	99.7	97.9	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P385980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189375	Organic Carbon	96.2	96.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P386258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2189688	Organic Carbon	98.0	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P385912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189519	Turbidity	2.52	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P385910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189410	Barium	0.133	Spike	P	0 - 20
2189410	Calcium	0.259	Spike	P	0 - 20
2189410	Iron	1.75	Spike	P	0 - 20
2189410	Magnesium	0.858	Spike	P	0 - 20
2189410	Potassium	0.473	Spike	P	0 - 20
2189410	Sodium	2.32	Spike	P	0 - 20
2189410	Zinc	0.0947	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P385910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189410	Aluminum	2.49	Spike	P	0 - 20
2189410	Antimony	3.59	Spike	P	0 - 20
2189410	Arsenic	2.54	Spike	P	0 - 20
2189410	Boron	2.87	Spike	P	0 - 20
2189410	Cadmium	4.11	Spike	P	0 - 20
2189410	Chromium	2.29	Spike	P	0 - 20
2189410	Copper	1.30	Spike	P	0 - 20
2189410	Lead	3.20	Spike	P	0 - 20
2189410	Nickel	4.26	Spike	P	0 - 20
2189410	Selenium	3.79	Spike	P	0 - 20
2189410	Silver	2.01	Spike	P	0 - 20
2189410	Thallium	3.65	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2188924	Bromide	1.43	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189370	Chloride	0.0877	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P386277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189370	Sulfate	0.332	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P386086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189572	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P385978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189164	Kjeldahl Nitrogen	1.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P386142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189685	Kjeldahl Nitrogen	3.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189464	NO2NO3-N	0.378	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P385939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189536	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189464	Total-P	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P385986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189688	Total-P	3.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189506	O-Phosphate-P	0.605	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P385920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189534	O-Phosphate-P	0.505	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P385923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189504	Color (true)	1.78	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P385924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189535	Color (true)	1.46	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P386228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189507	Total Alkalinity	0.255	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P386182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189458	TDS	0.583	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P386183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189516	TDS	5.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P385994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189516	Fluoride	1.48	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P385980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189375	Organic Carbon	0.0442	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P386258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2189688	Organic Carbon	1.83	Spike	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: A100393

Included Lab Sample IDs: 2189526, 2189529, 2189530, 2189535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A100394

Included Lab Sample IDs: 2189528, 2189533, 2189534, 2189537

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.3	P/P	90 - 110
O-Phosphate-P	99.0	98.6	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A100395

Included Lab Sample IDs: 2189526, 2189529, 2189530, 2189535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	106	P/P	90 - 115
Color (true)	106	106	P/P	90 - 115
Color (true)	106	105	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A100406

Included Lab Sample IDs: 2189527, 2189531, 2189532, 2189536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A100428

Included Lab Sample IDs: 2189563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	98.2	101	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Iron	103	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	101	99.9	P/P	90 - 110
Zinc	100	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A100436

Included Lab Sample IDs: 2189527, 2189531

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A100439

Included Lab Sample IDs: 2189526, 2189529, 2189530, 2189535

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100458

Included Lab Sample IDs: 2189527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100463

Included Lab Sample IDs: 2189532, 2189536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A100478

Included Lab Sample IDs: 2189527, 2189531, 2189532, 2189536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	97.9	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A100483

Included Lab Sample IDs: 2189563

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Antimony	107	107	P/P	90 - 110
Arsenic	100	99.4	P/P	90 - 110
Boron	100	101	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	102	103	P/P	90 - 110
Copper	98.4	97.7	P/P	90 - 110
Lead	106	108	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Selenium	99.3	101	P/P	90 - 110
Silver	106	106	P/P	90 - 110
Thallium	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A100484

Included Lab Sample IDs: 2189531, 2189532, 2189536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A100515

Included Lab Sample IDs: 2189527, 2189531

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

Reference Method: SM 2320 B-2011

Run ID: A100529

Included Lab Sample IDs: 2189526, 2189529, 2189530, 2189535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	104	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A100535

Included Lab Sample IDs: 2189532, 2189536

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.9	97.4	P/P	90 - 110
Organic Carbon	97.3	95.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100541

Included Lab Sample IDs: 2189535

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A100543

Included Lab Sample IDs: 2189526, 2189529, 2189530, 2189535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	102	101	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity								2.52	
EPA 200.7 Rev. 4.4	Barium	101			103	103	98.7			0.133
	Calcium	104			104	105				0.259
	Iron	104			104	106	103			1.75
	Magnesium	104			106	102				0.858
	Potassium	104			103	104	101			0.473
	Sodium	102			103	103				2.32
	Zinc	103			105	105	102			0.0947
EPA 200.8 Rev. 5.4	Aluminum	100			97.0	100	101			2.49
	Antimony	105			103	107	105			3.59
	Arsenic	102			101	103	101			2.54
	Boron	100			100	104	103			2.87
	Cadmium	106			103	107	106			4.11
	Chromium	102			104	106	105			2.29
	Copper	106			103	104	104			1.30
	Lead	108			108	111	110			3.20
	Nickel	105			100	105	103			4.26
	Selenium	100			97.5	101	96.5			3.79
	Silver	107			103	105	107			2.01
	Thallium	107			108	112	108			3.65
EPA 300.0 Rev. 2.1	Bromide	106			105	104	101			1.43
	Chloride	97.5			98.8	99.1			0.0877	
	Sulfate	99.2			100	101			0.332	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6			100	100				0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102			108	110				1.04
	Kjeldahl Nitrogen	104			107	102				3.58
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5			97.5					0.378
	NO2NO3-N	101			101	101				0.0
EPA 365.1 Rev. 2.0	Total-P	102			103	101				1.51
	Total-P	105			102	106				3.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100			98.8	99.4				0.605
	O-Phosphate-P	98.4			98.8	99.3				0.505
SM 2120 B-2011	Color (true)	104							1.78	
	Color (true)	104							1.46	
SM 2320 B-2011	Total Alkalinity	101							0.255	
SM 2540 C-2011	TDS								0.583	
	TDS								5.35	
SM 4500 F-C-2011	Fluoride	98.5			99.7	97.9				1.48
SM 5310 B-2011	Organic Carbon	97.4			96.2	96.2				0.0442
	Organic Carbon	95.4			98.0	100				1.83

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2189526, 2189529, 2189530, 2189535
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2189563
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2189563
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2189535
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2189526, 2189529, 2189530, 2189535
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2189526, 2189529, 2189530, 2189535
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2189527, 2189531, 2189532, 2189536

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2189527, 2189531, 2189532, 2189536
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2189527, 2189531, 2189532, 2189536
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2189527, 2189531, 2189532, 2189536
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2189528, 2189533, 2189534, 2189537
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2189526, 2189529, 2189530, 2189535
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2189526, 2189529, 2189530, 2189535
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2189563
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2189526, 2189529, 2189530, 2189535
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2189526, 2189529, 2189530, 2189535
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2189526, 2189529, 2189530, 2189535
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2189527, 2189531, 2189532, 2189536

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	08/11/2020			08/11/2020 15:24	Yen Ta	2189526, 2189529, 2189530, 2189535
EPA 200.7 Rev. 4.4	08/11/2020	08/11/2020 15:55	Elliott D. Healy	08/12/2020 18:30	Betina Topolski	2189563
EPA 200.8 Rev. 5.4	08/11/2020	08/11/2020 15:55	Elliott D. Healy	08/16/2020 02:09	Alexander Thompson	2189563
EPA 300.0 Rev. 2.1	08/11/2020			08/15/2020 20:38	Julia Storbeck	2189535
	08/11/2020			08/18/2020 05:19	Julia Storbeck	2189526
	08/11/2020			08/18/2020 05:31	Julia Storbeck	2189529
	08/11/2020			08/18/2020 06:07	Julia Storbeck	2189530
	08/11/2020			08/18/2020 06:19	Julia Storbeck	2189535
EPA 350.1 Rev. 2.0	08/11/2020			08/15/2020 15:22	Ping Hua	2189527
	08/11/2020			08/15/2020 15:23	Ping Hua	2189531
	08/11/2020			08/15/2020 15:25	Ping Hua	2189532
	08/11/2020			08/15/2020 15:26	Ping Hua	2189536
EPA 351.2 Rev. 2.0	08/11/2020	08/13/2020 10:15	Sima Feizi	08/14/2020 11:26	Jhamieka S. Greenwood	2189532
	08/11/2020	08/13/2020 10:15	Sima Feizi	08/14/2020 11:27	Jhamieka S. Greenwood	2189536
	08/11/2020	08/17/2020 09:42	David Boose	08/18/2020 15:32	Jhamieka S. Greenwood	2189527
	08/11/2020	08/17/2020 09:42	David Boose	08/18/2020 15:33	Jhamieka S. Greenwood	2189531
EPA 353.2 Rev. 2.0	08/11/2020			08/12/2020 09:30	Beverly Y. Sanders	2189527
	08/11/2020			08/12/2020 09:31	Beverly Y. Sanders	2189531
	08/11/2020			08/12/2020 09:38	Beverly Y. Sanders	2189536
	08/11/2020			08/12/2020 09:44	Beverly Y. Sanders	2189532
EPA 365.1 Rev. 2.0	08/11/2020	08/12/2020 11:41	Yen Ta	08/14/2020 08:39	Lipi Saha	2189527
	08/11/2020	08/13/2020 11:37	Yen Ta	08/17/2020 08:23	Lipi Saha	2189531
	08/11/2020	08/13/2020 11:37	Yen Ta	08/17/2020 08:24	Lipi Saha	2189532
	08/11/2020	08/13/2020 11:37	Yen Ta	08/17/2020 08:25	Lipi Saha	2189536
EPA 365.1 Rev. 2.0 dissolved	08/11/2020			08/11/2020 15:51	Jhamieka S. Greenwood	2189528
	08/11/2020			08/11/2020 15:58	Jhamieka S. Greenwood	2189534
	08/11/2020			08/11/2020 16:00	Jhamieka S. Greenwood	2189533
	08/11/2020			08/11/2020 16:01	Jhamieka S. Greenwood	2189537
SM 2120 B-2011	08/11/2020			08/11/2020 17:10	Benjamin T. Nordmann	2189526
	08/11/2020			08/11/2020 17:16	Benjamin T. Nordmann	2189535
	08/11/2020			08/11/2020 17:30	Benjamin T. Nordmann	2189529, 2189530
SM 2320 B-2011	08/11/2020			08/18/2020 16:19	Dale L. Simmons	2189526
	08/11/2020			08/18/2020 16:25	Dale L. Simmons	2189529
	08/11/2020			08/18/2020 16:32	Dale L. Simmons	2189530
	08/11/2020			08/18/2020 16:38	Dale L. Simmons	2189535
SM 2340B	08/11/2020			08/12/2020 18:30	Betina Topolski	2189563
SM 2540 C-2011	08/11/2020			08/12/2020 15:12	Yijie Li	2189526, 2189529, 2189530, 2189535
SM 2540 D-2011	08/11/2020			08/12/2020 15:12	Yijie Li	2189526, 2189529, 2189530, 2189535
SM 4500 F-C-2011	08/11/2020			08/12/2020 23:18	Dale L. Simmons	2189526
	08/11/2020			08/12/2020 23:26	Dale L. Simmons	2189529

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	08/11/2020			08/13/2020 00:25	Dale L. Simmons	2189530
	08/11/2020			08/13/2020 00:34	Dale L. Simmons	2189535
SM 5310 B-2011	08/11/2020			08/13/2020 02:02	David Boose	2189527
	08/11/2020			08/13/2020 02:14	David Boose	2189531
	08/11/2020			08/18/2020 19:24	David Boose	2189532
	08/11/2020			08/18/2020 20:01	David Boose	2189536