

Chemical Analysis Report

NW-DIST-2021-07-14-03

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

Event Description: **Milton East Run**
Request ID: **RQ-2021-07-12-23**
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

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

Date Certified: 16-AUG-2021 13:04

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 few letters of the last name.

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: Ates Creek upstream of Fish Hatchery Road

Collection Date/Time: 07/13/2021 10:30

Field ID: G4NW0525

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262059	EPA 200.7 Rev. 4.4	Barium	10.9		ug/L	P401018	
		Calcium	1.27		mg/L	P401018	
		Iron	1.00E+03		ug/L	P401018	
		Magnesium	0.62		mg/L	P401018	
		Manganese	35.7		ug/L	P401018	
		Potassium	0.42	I	mg/L	P401018	
		Sodium	3.1		mg/L	P401018	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P401018	
		Aluminum	129		ug/L	P401411	
		Antimony	0.050	I	ug/L	P401411	
		Arsenic	0.32		ug/L	P401411	
		Beryllium	0.017	I	ug/L	P401411	
		Boron**	10.4		ug/L	P401411	
		Cadmium	0.020	U	ug/L	P401411	
		Chromium	0.40	U	ug/L	P401411	
		Copper	0.40	U	ug/L	P401411	
		Lead	0.25	I	ug/L	P401411	
		Nickel	0.66	I	ug/L	P401411	
		Selenium	0.20	U	ug/L	P401411	
		Silver	0.010	U	ug/L	P401634	
		Thallium	0.10	U	ug/L	P401411	
	SM 2340B	Hardness	5.7		mg/L	P401018	

Sample Location: Collins Mill Creek upstream of Conecuh Street Collection Date/Time: 07/13/2021 09:50

Field ID: G4NW0507

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262033	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P400986	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P401360	
		Sulfate	1.5		mg SO4/L	P401363	
		Color (true)	25	A	PCU	P400969	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P401143	
	SM 2540 C-2011	TDS	35		mg/L	P401422	
	SM 2540 D-2011	TSS	2	I	mg/L	P401228	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401146	
2262034	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P401540	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P401223	
	SM 5310 B-2011	Organic Carbon	3.1		mg C/L	P401487	
2262035	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Bear Creek @ Forest Rd. 0.7 Miles West of Bear Lake **Collection Date/Time: 07/13/2021 11:05**

Field ID: G4NW0380

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262021	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P400985	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P401190	
		Sulfate	0.47	I	mg SO4/L	P401193	
	SM 2120 B-2011	Color (true)	47		PCU	P400968	
	SM 2320 B-2011	Total Alkalinity	3.1		mg CaCO3/L	P401349	
	SM 2540 C-2011	TDS	22	I	mg/L	P401421	
	SM 2540 D-2011	TSS	3	I	mg/L	P401227	
2262022	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401146	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P401327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P401223	
2262023	SM 5310 B-2011	Organic Carbon	4.5		mg C/L	P401487	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	
2262058	EPA 200.7 Rev. 4.4	Barium	8.8		ug/L	P401018	
		Calcium	1.50		mg/L	P401018	
		Iron	1.12E+03		ug/L	P401018	
		Magnesium	0.58		mg/L	P401018	
		Manganese	63.0		ug/L	P401018	
		Potassium	0.30	U	mg/L	P401018	
		Sodium	1.6	I	mg/L	P401018	
		Zinc	5.0	U	ug/L	P401018	
	EPA 200.8 Rev. 5.4	Aluminum	80		ug/L	P401411	
		Antimony	0.050	U	ug/L	P401411	
		Arsenic	0.57		ug/L	P401411	
		Beryllium	0.015	I	ug/L	P401411	
		Boron**	8.7		ug/L	P401411	
		Cadmium	0.020	U	ug/L	P401411	
		Chromium	0.40	U	ug/L	P401411	
		Copper	0.40	U	ug/L	P401411	
		Lead	0.20	U	ug/L	P401411	
		Nickel	0.50	U	ug/L	P401411	
		Selenium	0.20	U	ug/L	P401411	
		Silver	0.010	U	ug/L	P401634	
		Thallium	0.10	U	ug/L	P401411	
	SM 2340B	Hardness	6.1		mg/L	P401018	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Big Coldwater Creek upstream of HWY 4

Collection Date/Time: 07/13/2021 11:35

Field ID: G4NW0502

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262024	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P400985	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P401190	
		Sulfate	0.77		mg SO4/L	P401193	
	SM 2120 B-2011	Color (true)	52		PCU	P400968	
	SM 2320 B-2011	Total Alkalinity	2.8		mg CaCO3/L	P401349	
	SM 2540 C-2011	TDS	46		mg/L	P401421	
	SM 2540 D-2011	TSS	4	I	mg/L	P401227	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401146	
2262027	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P401327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P401223	
	SM 5310 B-2011	Organic Carbon	5.1		mg C/L	P401487	
2262030	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Manning Creek at Whitfield Road (North Side) Collection Date/Time: 07/13/2021 12:05

Field ID: G4NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262025	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P400985	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P401190	
		Sulfate	0.65		mg SO4/L	P401193	
	SM 2120 B-2011	Color (true)	55		PCU	P400968	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P401143	
	SM 2540 C-2011	TDS	38		mg/L	P401421	
	SM 2540 D-2011	TSS	2	I	mg/L	P401227	
2262028	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401146	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P401594	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P401223	
2262031	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P401487	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Big Coldwater Creek West fork upstream of Walling Rd

Collection Date/Time: 07/13/2021 12:25

Field ID: G4NW0436

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262018	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P400985	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P401441	
		Sulfate	1.6		mg SO4/L	P401193	
	SM 2120 B-2011	Color (true)	53	A	PCU	P400968	
	SM 2320 B-2011	Total Alkalinity	3.9		mg CaCO3/L	P401128	
	SM 2540 C-2011	TDS	49		mg/L	P401421	
	SM 2540 D-2011	TSS	7	I	mg/L	P401227	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401131	
2262019	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P401327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.91		mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P401223	
	SM 5310 B-2011	Organic Carbon	5.5		mg C/L	P401487	
2262020	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	
2262057	EPA 200.7 Rev. 4.4	Barium	51.6		ug/L	P401018	
		Calcium	2.66		mg/L	P401018	
		Iron	870		ug/L	P401018	
		Magnesium	1.70		mg/L	P401018	
		Manganese	61.2		ug/L	P401018	
		Potassium	1.1	I	mg/L	P401018	
		Sodium	2.3		mg/L	P401018	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P401018	
		Aluminum	325		ug/L	P401411	
		Antimony	0.064	I	ug/L	P401411	
		Arsenic	0.46		ug/L	P401411	
		Beryllium	0.079		ug/L	P401411	
		Boron**	15.8		ug/L	P401411	
		Cadmium	0.020	U	ug/L	P401411	
		Chromium	0.45	I	ug/L	P401411	
		Copper	0.40	U	ug/L	P401411	
		Lead	0.38	I	ug/L	P401411	
		Nickel	0.83	I	ug/L	P401411	
		Selenium	0.20	U	ug/L	P401411	
		Silver	0.010	U	ug/L	P401634	
		Thallium	0.10	U	ug/L	P401411	
	SM 2340B	Hardness	13.6		mg/L	P401018	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Manning Creek upstream of Manning Creek Rd Collection Date/Time: 07/13/2021 12:50

Field ID: G4NW0435

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2262026	EPA 180.1 Rev. 2.0	Turbidity	7.5	A	NTU	P400986	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P401360	
		Sulfate	0.69		mg SO4/L	P401363	
	SM 2120 B-2011	Color (true)	79		PCU	P400968	
	SM 2320 B-2011	Total Alkalinity	1.8	I	mg CaCO3/L	P401349	
	SM 2540 C-2011	TDS	45		mg/L	P401421	
	SM 2540 D-2011	TSS	8	I	mg/L	P401227	
2262029	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401146	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P401540	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43	J	mg N/L	P401993	LCS, MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P401059	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P401223	
2262032	SM 5310 B-2011	Organic Carbon	8.0		mg C/L	P401487	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P400955	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400985

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400986

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401018

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
Manganese	1.0	U	ug/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: P401411

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401634

Component	Result	Code	Units
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401190

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401193

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401360

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401363

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401441

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401327

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401594

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401993

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401059

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401223

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400955

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

Reference Method: SM 2120 B-2011
Batch ID: P400968

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P400969

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P401128

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

Reference Method: SM 2320 B-2011
Batch ID: P401143

Component	Result	Code	Units
Total Alkalinity	1.2	I	mg CaCO3/L

Reference Method: SM 2320 B-2011
Batch ID: P401349

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

Reference Method: SM 2540 C-2011
Batch ID: P401421

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P401422

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P401227

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401228

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401131

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401146

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P401487

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: P401018

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	107		P	85 - 115
Iron	106		P	85 - 115
Magnesium	109		P	85 - 115
Manganese	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	106		P	85 - 115
Zinc	99.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	108		P	85 - 115
Arsenic	102		P	85 - 115
Beryllium	106		P	85 - 115
Boron	105		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	101		P	85 - 115
Copper	99.0		P	85 - 115
Lead	102		P	85 - 115
Nickel	102		P	85 - 115
Selenium	102		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401634

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	113		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401190

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401360

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401363

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401441

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401327

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401594

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	112		F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401223

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400955

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P400968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P400969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P401128

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P401143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P401349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P401131

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P401146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P401487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P401018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262059	Barium	106		P	80 - 120
2262059	Calcium	114		P	80 - 120
2262059	Iron	111		P	80 - 120
2262059	Magnesium	115		P	80 - 120
2262059	Manganese	105		P	80 - 120
2262059	Potassium	103		P	80 - 120
2262059	Sodium	108		P	80 - 120
2262059	Zinc	108		P	80 - 120
2262373	Barium	104	108	P/P	80 - 120
2262373	Calcium	109		P	80 - 120
2262373	Iron	108	112	P/P	80 - 120
2262373	Magnesium	107	114	P/P	80 - 120
2262373	Manganese	103	107	P/P	80 - 120
2262373	Potassium	98.9	104	P/P	80 - 120
2262373	Sodium	104		P	80 - 120
2262373	Zinc	107	111	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262058	Aluminum	106		P	80 - 120
2262058	Antimony	113		P	80 - 120
2262058	Arsenic	98.8		P	80 - 120
2262058	Beryllium	107		P	80 - 120
2262058	Boron	109		P	80 - 120
2262058	Cadmium	104		P	80 - 120
2262058	Chromium	102		P	80 - 120
2262058	Copper	95.6		P	80 - 120
2262058	Lead	103		P	80 - 120
2262058	Nickel	96.2		P	80 - 120
2262058	Selenium	101		P	80 - 120
2262058	Thallium	104		P	80 - 120
2262294	Aluminum	102	103	P/P	80 - 120
2262294	Antimony	107	108	P/P	80 - 120
2262294	Arsenic	100	99.4	P/P	80 - 120
2262294	Beryllium	104	106	P/P	80 - 120
2262294	Boron	104	107	P/P	80 - 120
2262294	Cadmium	102	103	P/P	80 - 120
2262294	Chromium	100	101	P/P	80 - 120
2262294	Copper	97.1	94.4	P/P	80 - 120
2262294	Lead	98.0	98.0	P/P	80 - 120
2262294	Nickel	93.0	91.5	P/P	80 - 120
2262294	Selenium	99.5	99.6	P/P	80 - 120
2262294	Thallium	105	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262058	Silver	111	107	P/P	80 - 120
2262400	Silver	111		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261958	Chloride	101	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261958	Sulfate	101	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261754	Chloride	96.3		P	90 - 110
2262166	Chloride	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261754	Sulfate	96.4		P	90 - 110
2262166	Sulfate	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262747	Chloride	95.1		P	90 - 110
2262749	Chloride	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261984	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262034	Ammonia-N	99.4	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262354	Ammonia-N	99.0	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262022	Kjeldahl Nitrogen	109	111	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262028	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262019	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261968	O-Phosphate-P	98.1	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401131

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261960	Fluoride	99.1	99.7	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P401146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262470	Fluoride	99.2	99.2	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P401487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262027	Organic Carbon	96.5	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261959	Turbidity	3.61	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P400986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262026	Turbidity	0.133	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262373	Barium	3.67	Spike	P	0 - 20
2262373	Calcium	3.46	Spike	P	0 - 20
2262373	Iron	3.43	Spike	P	0 - 20
2262373	Magnesium	3.82	Spike	P	0 - 20
2262373	Manganese	3.43	Spike	P	0 - 20
2262373	Potassium	2.71	Spike	P	0 - 20
2262373	Sodium	2.39	Spike	P	0 - 20
2262373	Zinc	3.49	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262294	Aluminum	1.13	Spike	P	0 - 20
2262294	Antimony	0.763	Spike	P	0 - 20
2262294	Arsenic	1.00	Spike	P	0 - 20
2262294	Beryllium	1.60	Spike	P	0 - 20
2262294	Boron	2.01	Spike	P	0 - 20
2262294	Cadmium	1.16	Spike	P	0 - 20
2262294	Chromium	0.783	Spike	P	0 - 20
2262294	Copper	2.68	Spike	P	0 - 20
2262294	Lead	0.00119	Spike	P	0 - 20
2262294	Nickel	1.45	Spike	P	0 - 20
2262294	Selenium	0.119	Spike	P	0 - 20
2262294	Thallium	0.280	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262058	Silver	4.16	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261958	Chloride	1.83	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261958	Sulfate	2.35	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261754	Chloride	0.625	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261754	Sulfate	1.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262747	Chloride	0.714	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261984	Ammonia-N	1.00	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262034	Ammonia-N	0.122	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262354	Ammonia-N	2.20	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262022	Kjeldahl Nitrogen	0.937	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262028	NO2NO3-N	0.952	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262019	Total-P	0.0687	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261968	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P400968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262018	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P400969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262033	Color (true)	0.966	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261960	Total Alkalinity	1.37	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P401143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262470	Total Alkalinity	0.117	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
 Batch ID: P401349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262793	Total Alkalinity	0.0204	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
 Batch ID: P401421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262036	TDS	6.57	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P401422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262155	TDS	2.09	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P401131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261960	Fluoride	0.506	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
 Batch ID: P401146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262470	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P401487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262027	Organic Carbon	0.856	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106614

Included Lab Sample IDs: 2262020, 2262023, 2262030, 2262031, 2262032, 2262035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	97.9	P/P	90 - 110
O-Phosphate-P	98.2	97.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106621

Included Lab Sample IDs: 2262018, 2262021, 2262024, 2262025, 2262026, 2262033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106624

Included Lab Sample IDs: 2262018, 2262021, 2262024, 2262025, 2262026, 2262033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106656

Included Lab Sample IDs: 2262019, 2262022, 2262027, 2262028, 2262029, 2262034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106677

Included Lab Sample IDs: 2262018

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106677

Included Lab Sample IDs: 2262018

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

Reference Method: SM 2320 B-2011

Run ID: A106679

Included Lab Sample IDs: 2262025, 2262033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A106679

Included Lab Sample IDs: 2262021, 2262024, 2262025, 2262026, 2262033

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106703

Included Lab Sample IDs: 2262021, 2262024, 2262025

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106735

Included Lab Sample IDs: 2262019, 2262022, 2262027, 2262028, 2262029, 2262034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106749

Included Lab Sample IDs: 2262019, 2262022, 2262027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106753

Included Lab Sample IDs: 2262021, 2262024, 2262026

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106762

Included Lab Sample IDs: 2262018, 2262026, 2262033

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

Reference Method: SM 5310 B-2011

Run ID: A106803

Included Lab Sample IDs: 2262019, 2262022, 2262027, 2262028, 2262029, 2262034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.0	P/P	90 - 110
Organic Carbon	98.0	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106806

Included Lab Sample IDs: 2262057, 2262058, 2262059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Aluminum	103	102	P/P	90 - 110
Arsenic	98.7	98.7	P/P	90 - 110
Arsenic	99.4	98.7	P/P	90 - 110
Beryllium	100	100	P/P	90 - 110
Beryllium	100	100	P/P	90 - 110
Boron	100	101	P/P	90 - 110
Boron	101	103	P/P	90 - 110
Cadmium	101	104	P/P	90 - 110
Cadmium	104	103	P/P	90 - 110
Chromium	101	102	P/P	90 - 110
Chromium	102	99.7	P/P	90 - 110
Copper	94.8	93.9	P/P	90 - 110
Copper	96.8	94.8	P/P	90 - 110
Lead	99.2	99.9	P/P	90 - 110
Lead	99.9	99.6	P/P	90 - 110
Nickel	94.8	94.4	P/P	90 - 110
Nickel	97.7	94.8	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Selenium	102	102	P/P	90 - 110
Thallium	97.7	98.4	P/P	90 - 110
Thallium	98.4	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106828

Included Lab Sample IDs: 2262029, 2262034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106829

Included Lab Sample IDs: 2262057, 2262058, 2262059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	107	108	P/P	90 - 110
Antimony	108	109	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106839

Included Lab Sample IDs: 2262057, 2262058, 2262059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	103	P/P	90 - 110
Barium	103	102	P/P	90 - 110
Calcium	101	103	P/P	90 - 110
Calcium	103	103	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Iron	98.9	101	P/P	90 - 110
Magnesium	101	100	P/P	90 - 110
Magnesium	98.8	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106839

Included Lab Sample IDs: 2262057, 2262058, 2262059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Manganese	101	103	P/P	90 - 110
Manganese	103	102	P/P	90 - 110
Potassium	101	98.6	P/P	90 - 110
Potassium	98.6	98.9	P/P	90 - 110
Sodium	101	99.8	P/P	90 - 110
Sodium	99.8	99.6	P/P	90 - 110
Zinc	101	106	P/P	90 - 110
Zinc	106	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106850

Included Lab Sample IDs: 2262028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	98.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106941

Included Lab Sample IDs: 2262057, 2262058, 2262059

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	97.9	98.8	P/P	90 - 110
Silver	98.8	99.3	P/P	90 - 110
Silver	99.3	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107072

Included Lab Sample IDs: 2262019, 2262022, 2262027, 2262028, 2262029, 2262034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110
Kjeldahl Nitrogen	105	105	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					3.61	
	Turbidity					0.133	
EPA 200.7 Rev. 4.4	Barium	102	106	104	108		3.67
	Calcium	107	114	109			3.46
	Iron	106	111	108	112		3.43
	Magnesium	109	115	107	114		3.82
	Manganese	102	105	103	107		3.43
	Potassium	101	103	98.9	104		2.71
	Sodium	106	108	104			2.39
	Zinc	99.6	108	107	111		3.49
EPA 200.8 Rev. 5.4	Aluminum	105	102	103	106		1.13
	Antimony	108	107	108	113		0.763
	Arsenic	102	98.8	100	99.4		1.00
	Beryllium	106	104	106	107		1.60
	Boron	105	104	107	109		2.01
	Cadmium	101	102	103	104		1.16
	Chromium	101	100	101	102		0.783
	Copper	99.0	97.1	94.4	95.6		2.68
	Lead	102	98.0	98.0	103		0.0011
	Nickel	102	93.0	91.5	96.2		1.45
	Selenium	102	99.5	99.6	101		0.119
	Silver	113	111	107	111		4.16
	Thallium	103	105	105	104		0.280
EPA 300.0 Rev. 2.1	Chloride	103	101	103			1.83
	Chloride	100	96.3	96.4		0.625	
	Chloride	99.0	95.1	97.8		0.714	
	Sulfate	99.8	101	104			2.35
	Sulfate	100	96.4	99.1		1.52	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.0	101			1.00
	Ammonia-N	102	99.4	99.6			0.122
	Ammonia-N	101	99.0	96.0			2.20
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	112	109	111			0.937
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	101			0.952
EPA 365.1 Rev. 2.0	Total-P	106	107	107			0.0687
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.1	98.1			0.0
SM 2120 B-2011	Color (true)	99.5				1.42	
	Color (true)	101				0.966	
SM 2320 B-2011	Total Alkalinity	101				1.37	
	Total Alkalinity	104				0.117	
	Total Alkalinity	103				0.0204	
SM 2540 C-2011	TDS					6.57	
	TDS					2.09	
SM 4500 F-C-2011	Fluoride	97.6	99.1	99.7			0.506
	Fluoride	100	99.2	99.2			0.0
SM 5310 B-2011	Organic Carbon	96.3	96.5	97.6			0.856

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2262057, 2262058, 2262059

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2262057, 2262058, 2262059
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2262019, 2262022, 2262027, 2262028, 2262029, 2262034
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2262019, 2262022, 2262027, 2262028, 2262029, 2262034
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2262019, 2262022, 2262027, 2262028, 2262029, 2262034
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2262019, 2262022, 2262027, 2262028, 2262029, 2262034
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2262020, 2262023, 2262030, 2262031, 2262032, 2262035
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2262057, 2262058, 2262059
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2262019, 2262022, 2262027, 2262028, 2262029, 2262034

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	07/14/2021			07/14/2021 16:49	Sarah A Nixon	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
EPA 200.7 Rev. 4.4	07/14/2021	07/15/2021 14:55	Elliott D. Healy	07/26/2021 14:42	Josef B Mick	2262057
	07/14/2021	07/15/2021 14:55	Elliott D. Healy	07/26/2021 14:48	Josef B Mick	2262058
	07/14/2021	07/15/2021 14:55	Elliott D. Healy	07/26/2021 15:21	Josef B Mick	2262059
EPA 200.8 Rev. 5.4	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/23/2021 20:05	Alexander Thompson	2262058
	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/23/2021 20:53	Alexander Thompson	2262057
	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/23/2021 21:03	Alexander Thompson	2262059
	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/26/2021 14:59	Alexander Thompson	2262058
	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/26/2021 15:31	Alexander Thompson	2262057
	07/14/2021	07/22/2021 15:25	Elliott D. Healy	07/26/2021 15:37	Alexander Thompson	2262059
	07/14/2021	07/28/2021 12:45	Elliott D. Healy	07/29/2021 17:44	McKinley C Carter	2262058
	07/14/2021	07/28/2021 12:45	Elliott D. Healy	07/29/2021 19:09	McKinley C Carter	2262057
	07/14/2021	07/28/2021 12:45	Elliott D. Healy	07/29/2021 19:49	McKinley C Carter	2262059
EPA 300.0 Rev. 2.1	07/14/2021			07/20/2021 08:45	Lipi Saha	2262018
	07/14/2021			07/20/2021 08:57	Lipi Saha	2262021
	07/14/2021			07/20/2021 09:09	Lipi Saha	2262024
	07/14/2021			07/20/2021 09:21	Lipi Saha	2262025
	07/14/2021			07/20/2021 19:48	Lipi Saha	2262026
	07/14/2021			07/20/2021 20:00	Lipi Saha	2262033
	07/14/2021			07/22/2021 18:42	Lipi Saha	2262018
EPA 350.1 Rev. 2.0	07/14/2021			07/21/2021 15:11	Ping Hua	2262019
	07/14/2021			07/21/2021 15:12	Ping Hua	2262022
	07/14/2021			07/21/2021 15:13	Ping Hua	2262027
	07/14/2021			07/26/2021 13:23	Roberta Tatti	2262029
	07/14/2021			07/26/2021 13:24	Roberta Tatti	2262034
	07/14/2021			07/27/2021 12:19	Roberta Tatti	2262028
EPA 351.2 Rev. 2.0	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:15	Virginia P. Brown	2262019
	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:17	Virginia P. Brown	2262022
	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:25	Virginia P. Brown	2262027
	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:27	Virginia P. Brown	2262028
	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:28	Virginia P. Brown	2262029
	07/14/2021	08/04/2021 14:07	Benjamin T. Nordmann	08/05/2021 16:30	Virginia P. Brown	2262034
EPA 353.2 Rev. 2.0	07/14/2021			07/16/2021 09:25	Beverly Y. Sanders	2262027
	07/14/2021			07/16/2021 09:27	Beverly Y. Sanders	2262028
	07/14/2021			07/16/2021 09:28	Beverly Y. Sanders	2262029
	07/14/2021			07/16/2021 09:29	Beverly Y. Sanders	2262034
	07/14/2021			07/16/2021 10:22	Beverly Y. Sanders	2262019
	07/14/2021			07/16/2021 10:23	Beverly Y. Sanders	2262022
EPA 365.1 Rev. 2.0	07/14/2021	07/20/2021 13:32	Shengyu Ding	07/21/2021 12:23	Shengyu Ding	2262019, 2262022

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	07/14/2021	07/20/2021 13:32	Shengyu Ding	07/21/2021 12:24	Shengyu Ding	2262027
	07/14/2021	07/20/2021 13:32	Shengyu Ding	07/21/2021 12:25	Shengyu Ding	2262028
	07/14/2021	07/20/2021 13:32	Shengyu Ding	07/21/2021 12:26	Shengyu Ding	2262029
	07/14/2021	07/20/2021 13:32	Shengyu Ding	07/21/2021 12:27	Shengyu Ding	2262034
EPA 365.1 Rev. 2.0 dissolved	07/14/2021			07/14/2021 15:28	Ping Hua	2262020
	07/14/2021			07/14/2021 15:29	Ping Hua	2262023
	07/14/2021			07/14/2021 15:30	Ping Hua	2262030
	07/14/2021			07/14/2021 15:31	Ping Hua	2262031, 2262032
	07/14/2021			07/14/2021 15:36	Ping Hua	2262035
SM 2120 B-2011	07/14/2021			07/14/2021 17:30	Sarah A Nixon	2262018
	07/14/2021			07/14/2021 17:34	Sarah A Nixon	2262021
	07/14/2021			07/14/2021 17:35	Sarah A Nixon	2262024
	07/14/2021			07/14/2021 17:36	Sarah A Nixon	2262025, 2262026
SM 2320 B-2011	07/14/2021			07/14/2021 17:41	Sarah A Nixon	2262033
	07/14/2021			07/16/2021 02:44	Dale L. Simmons	2262018
	07/14/2021			07/17/2021 01:28	Dale L. Simmons	2262025
	07/14/2021			07/17/2021 01:49	Dale L. Simmons	2262033
	07/14/2021			07/21/2021 01:17	Dale L. Simmons	2262021
SM 2340B	07/14/2021			07/21/2021 01:24	Dale L. Simmons	2262024
	07/14/2021			07/21/2021 01:30	Dale L. Simmons	2262026
	07/14/2021			07/26/2021 14:42	Josef B Mick	2262057
	07/14/2021			07/26/2021 14:48	Josef B Mick	2262058
	07/14/2021			07/26/2021 15:21	Josef B Mick	2262059
SM 2540 C-2011	07/14/2021			07/16/2021 14:42	Yijie Li	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 2540 D-2011	07/14/2021			07/16/2021 14:42	Yijie Li	2262018, 2262021, 2262024, 2262025, 2262026, 2262033
SM 4500 F-C-2011	07/14/2021			07/16/2021 02:44	Dale L. Simmons	2262018
	07/14/2021			07/17/2021 01:11	Dale L. Simmons	2262021
	07/14/2021			07/17/2021 01:20	Dale L. Simmons	2262024
	07/14/2021			07/17/2021 01:28	Dale L. Simmons	2262025
	07/14/2021			07/17/2021 01:37	Dale L. Simmons	2262026
SM 5310 B-2011	07/14/2021			07/17/2021 01:49	Dale L. Simmons	2262033
	07/14/2021			07/21/2021 20:16	Madeline Gruver	2262027
	07/14/2021			07/21/2021 21:12	Madeline Gruver	2262034
	07/14/2021			07/21/2021 23:51	Madeline Gruver	2262019
	07/14/2021			07/22/2021 00:04	Madeline Gruver	2262022
	07/14/2021			07/22/2021 00:21	Madeline Gruver	2262028
	07/14/2021			07/22/2021 00:36	Madeline Gruver	2262029