

Chemical Analysis Report

NW-DIST-2021-07-20-01

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

Event Description: **Pace Run Full**
Request ID: **RQ-2021-07-19-19**
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.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 16-AUG-2021 13:34

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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: Coldwater Creek West Fork on CR 178

Collection Date/Time: 07/19/2021 11:25

Field ID: G4NW0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263309	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P401680	
		Sulfate	1.3		mg SO4/L	P401683	
	SM 2120 B-2011	Color (true)	46		PCU	P401253	
	SM 2320 B-2011	Total Alkalinity	3.8		mg CaCO3/L	P401615	
	SM 2540 C-2011	TDS	37		mg/L	P401796	
	SM 2540 D-2011	TSS	8	I	mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401468	
2263313	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P401705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P401925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P401545	
	SM 5310 B-2011	Organic Carbon	4.6		mg C/L	P402092	
2263317	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401241	

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: EB_07192021

Collection Date/Time: 07/19/2021 11:20

Field ID: EB_07192021

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263321	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P401681	
		Sulfate	0.20	U	mg SO4/L	P401684	
		Color (true)	2.5	U	PCU	P401253	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P401464	
	SM 2540 C-2011	TDS	15	U	mg/L	P401795	
	SM 2540 D-2011	TSS	2	U	mg/L	P401800	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401468	
2263322	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P401705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P401925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P401545	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P402093	
2263323	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401241	
2263351	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P401304	
		Calcium	0.075	U	mg/L	P401304	
		Iron	30	U	ug/L	P401304	
		Magnesium	0.040	U	mg/L	P401304	
		Manganese	1.0	U	ug/L	P401304	
		Potassium	0.30	U	mg/L	P401304	
		Sodium	0.50	U	mg/L	P401304	
		Zinc	5.8	I	ug/L	P401304	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P401304	
		Antimony	0.050	U	ug/L	P401304	
		Arsenic	0.050	U	ug/L	P401304	
		Beryllium	0.010	U	ug/L	P401304	
		Boron**	2.0	U	ug/L	P401304	
		Cadmium	0.020	U	ug/L	P401304	
		Chromium	0.40	U	ug/L	P401304	
		Copper	3.79		ug/L	P401304	
		Lead	0.20	U	ug/L	P401304	
		Nickel	0.50	U	ug/L	P401304	
		Selenium	0.20	U	ug/L	P401304	
		Silver	0.010	U	ug/L	P401304	
		Thallium	0.10	U	ug/L	P401304	
	SM 2340B	Hardness	0.35	U	mg/L	P401304	

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: The result was confirmed on 07/29/2021.

EPA 200.7 Rev. 4.4: The zinc result was confirmed in the undigested sample on 07/30/2021.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 07/26/2021.

Sample Location: Bucket Branch downstream of Pat Brown Road Collection Date/Time: 07/19/2021 09:50

Field ID: G4NW0532

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263306	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P401680	
		Sulfate	1.1		mg SO4/L	P401683	
		Color (true)	53		PCU	P401252	
	SM 2320 B-2011	Total Alkalinity	4.1		mg CaCO3/L	P401463	
	SM 2540 C-2011	TDS	30		mg/L	P401796	
	SM 2540 D-2011	TSS	3	I	mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401467	
2263307	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P401647	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P401925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P401506	
	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P402092	
2263308	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P401241	
2263350	EPA 200.7 Rev. 4.4	Barium	29.5		ug/L	P401304	
		Calcium	1.94		mg/L	P401304	
		Iron	830		ug/L	P401304	
		Magnesium	1.27		mg/L	P401304	
		Manganese	54.6		ug/L	P401304	
		Potassium	0.53	I	mg/L	P401304	
		Sodium	2.2		mg/L	P401304	
	EPA 200.8 Rev. 5.4	Zinc	5.3	I	ug/L	P401304	
		Aluminum	162		ug/L	P401304	
		Antimony	0.050	U	ug/L	P401304	
		Arsenic	0.39		ug/L	P401304	
		Beryllium	0.014	I	ug/L	P401304	
		Boron**	12.8		ug/L	P401304	
		Cadmium	0.020	U	ug/L	P401304	
		Chromium	0.40	U	ug/L	P401304	
		Copper	0.40	U	ug/L	P401304	
		Lead	0.25	I	ug/L	P401304	
		Nickel	0.50	U	ug/L	P401304	
		Selenium	0.20	U	ug/L	P401304	
		Silver	0.010	U	ug/L	P401304	
		Thallium	0.10	U	ug/L	P401304	
		Hardness	10.1		mg/L	P401304	

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: Clear Creek upstream of HWY 87A

Collection Date/Time: 07/19/2021 11:50

Field ID: G4NW0510

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263310	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P401680	
		Sulfate	0.34	I	mg SO4/L	P401683	
	SM 2120 B-2011	Color (true)	11		PCU	P401253	
	SM 2320 B-2011	Total Alkalinity	3.2		mg CaCO3/L	P401615	
	SM 2540 C-2011	TDS	27		mg/L	P401796	
	SM 2540 D-2011	TSS	3	I	mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401468	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P401705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P401925	
2263314	EPA 353.2 Rev. 2.0	NO2NO3-N	1.6		mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P401545	
	SM 5310 B-2011	Organic Carbon	1.3		mg C/L	P402093	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P401241	
	dissolved						

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: Clear Creek upstream of Pat Brown Road

Collection Date/Time: 07/19/2021 09:35

Field ID: G4NW0360

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263311	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P401680	
		Sulfate	0.43	I	mg SO4/L	P401683	
	SM 2120 B-2011	Color (true)	21	A	PCU	P401253	
	SM 2320 B-2011	Total Alkalinity	3.1		mg CaCO3/L	P401615	
	SM 2540 C-2011	TDS	21	I	mg/L	P401796	
	SM 2540 D-2011	TSS	4	I	mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401468	
2263315	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P401705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P401925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.94		mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P401545	
	SM 5310 B-2011	Organic Carbon	1.7		mg C/L	P402093	
2263319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401241	

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: Big Coldeater Creek end of Steel Bridge Rd

Collection Date/Time: 07/19/2021 10:35

Field ID: G4NW0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263300	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P401680	
		Sulfate	0.82		mg SO4/L	P401683	
	SM 2120 B-2011	Color (true)	63	J	PCU	P401252	
	SM 2320 B-2011	Total Alkalinity	1.5	I	mg CaCO3/L	P401463	
	SM 2540 C-2011	TDS	36		mg/L	P401796	
	SM 2540 D-2011	TSS	16		mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401467	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P401647	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P402246	
2263302	EPA 353.2 Rev. 2.0	NO2NO3-N	0.63		mg N/L	P401284	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P401506	
	SM 5310 B-2011	Organic Carbon	5.7		mg C/L	P402092	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P401241	
	dissolved						

Ref. Method and Comment:

SM 2120 B-2011: The result may be biased high because of matrix interference.

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

Sample Location: Big Coldwater Creek below CR191

Collection Date/Time: 07/19/2021 10:10

Field ID: G4NW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263301	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P401680	
		Sulfate	0.84		mg SO4/L	P401683	
	SM 2120 B-2011	Color (true)	61	J	PCU	P401252	
	SM 2320 B-2011	Total Alkalinity	1.5	I	mg CaCO3/L	P401463	
	SM 2540 C-2011	TDS	28		mg/L	P401796	
	SM 2540 D-2011	TSS	21		mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401467	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P401647	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P402246	
2263303	EPA 353.2 Rev. 2.0	NO2NO3-N	0.62		mg N/L	P401284	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P401506	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P402092	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P401241	
	dissolved						

Ref. Method and Comment:

SM 2120 B-2011: The result may be biased high because of matrix interference.

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

Sample Location: Coldwater Creek West Fork downstream of HWY 87

Collection Date/Time: 07/19/2021 11:00

Field ID: G4NW0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2263312	EPA 180.1 Rev. 2.0	Turbidity	8.7		NTU	P401248	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P401681	
		Sulfate	1.0		mg SO4/L	P401684	
	SM 2120 B-2011	Color (true)	48		PCU	P401253	
	SM 2320 B-2011	Total Alkalinity	2.9		mg CaCO3/L	P401615	
	SM 2540 C-2011	TDS	42		mg/L	P401796	
	SM 2540 D-2011	TSS	9	I	mg/L	P401801	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401468	
2263316	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P401705	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P401925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P401285	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P401545	
	SM 5310 B-2011	Organic Carbon	4.9		mg C/L	P402093	
2263320	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401241	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401248

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401304

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: P401304

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401680

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401681

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401683

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401684

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401647

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401705

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401925

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402246

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401284

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401285

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401506

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401545

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: P401241

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

Reference Method: SM 2120 B-2011
Batch ID: P401252

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P401253

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P401463

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

Reference Method: SM 2320 B-2011
Batch ID: P401464

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

Reference Method: SM 2320 B-2011
Batch ID: P401615

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

Reference Method: SM 2540 C-2011
Batch ID: P401795

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P401796

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401800

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P401801

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401467

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401468

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402092

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

Reference Method: SM 5310 B-2011
Batch ID: P402093

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: P401304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	92.0		P	85 - 115
Calcium	97.1		P	85 - 115
Iron	96.2		P	85 - 115
Magnesium	98.5		P	85 - 115
Manganese	91.4		P	85 - 115
Potassium	95.2		P	85 - 115
Sodium	99.0		P	85 - 115
Zinc	87.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.0		P	85 - 115
Antimony	94.3		P	85 - 115
Arsenic	96.0		P	85 - 115
Beryllium	102		P	85 - 115
Boron	97.9		P	85 - 115
Cadmium	91.5		P	85 - 115
Chromium	90.7		P	85 - 115
Copper	93.8		P	85 - 115
Lead	93.5		P	85 - 115
Nickel	94.3		P	85 - 115
Selenium	93.7		P	85 - 115
Silver	113		P	85 - 115
Thallium	97.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401680

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401681

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401683

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401647

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401705

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: P401925

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402246

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401285

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401506

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401545

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401241

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P401252

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

Reference Method: SM 2120 B-2011
Batch ID: P401253

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P401463

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

Reference Method: SM 2320 B-2011
Batch ID: P401464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P401615

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

Reference Method: SM 4500 F-C-2011
Batch ID: P401467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P401468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P402093

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P401304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262527	Barium	96.7	96.3	P/P	80 - 120
2262527	Calcium	100	102	P/P	80 - 120
2262527	Iron	101	103	P/P	80 - 120
2262527	Magnesium	103	105	P/P	80 - 120
2262527	Manganese	95.8	95.2	P/P	80 - 120
2262527	Potassium	99.0	102	P/P	80 - 120
2262527	Sodium	102	105	P/P	80 - 120
2262527	Zinc	91.3	92.2	P/P	80 - 120
2263350	Barium	108		P	80 - 120
2263350	Calcium	114		P	80 - 120
2263350	Iron	112		P	80 - 120
2263350	Magnesium	116		P	80 - 120
2263350	Manganese	106		P	80 - 120
2263350	Potassium	107		P	80 - 120
2263350	Sodium	113		P	80 - 120
2263350	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262527	Aluminum	91.1	93.4	P/P	80 - 120
2262527	Antimony	91.2	92.0	P/P	80 - 120
2262527	Arsenic	89.3	89.5	P/P	80 - 120
2262527	Beryllium	102	102	P/P	80 - 120
2262527	Boron	92.3	93.8	P/P	80 - 120
2262527	Cadmium	88.7	89.6	P/P	80 - 120
2262527	Chromium	85.1	86.1	P/P	80 - 120
2262527	Copper	88.7	89.9	P/P	80 - 120
2262527	Lead	91.3	91.3	P/P	80 - 120
2262527	Nickel	87.6	88.6	P/P	80 - 120
2262527	Selenium	87.0	86.9	P/P	80 - 120
2262527	Silver	111	110	P/P	80 - 120
2262527	Thallium	94.1	95.4	P/P	80 - 120
2263350	Aluminum	92.1		P	80 - 120
2263350	Antimony	92.4		P	80 - 120
2263350	Arsenic	90.3		P	80 - 120
2263350	Beryllium	101		P	80 - 120
2263350	Boron	90.3		P	80 - 120
2263350	Cadmium	87.9		P	80 - 120
2263350	Chromium	88.6		P	80 - 120
2263350	Copper	90.1		P	80 - 120
2263350	Lead	90.3		P	80 - 120
2263350	Nickel	92.0		P	80 - 120
2263350	Selenium	89.6		P	80 - 120
2263350	Silver	111		P	80 - 120
2263350	Thallium	94.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263038	Chloride	99.3		P	90 - 110
2263273	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263312	Chloride	101		P	90 - 110
2263599	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263038	Sulfate	99.0		P	90 - 110
2263273	Sulfate	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263312	Sulfate	95.3		P	90 - 110
2263599	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261556	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261981	Ammonia-N	98.2	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263314	Kjeldahl Nitrogen	96.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263203	Kjeldahl Nitrogen	109	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263151	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263307	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263302	Total-P	109	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263315	Total-P	103	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263304	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263128	Fluoride	98.5	101	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P401468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263593	Fluoride	100	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263151	Organic Carbon	98.0	98.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P402093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263325	Organic Carbon	96.0	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P401248

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263306	Turbidity	2.44	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P401304

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262527	Barium	0.482	Spike	P	0 - 20
2262527	Calcium	1.38	Spike	P	0 - 20
2262527	Iron	1.79	Spike	P	0 - 20
2262527	Magnesium	1.75	Spike	P	0 - 20
2262527	Manganese	0.578	Spike	P	0 - 20
2262527	Potassium	2.59	Spike	P	0 - 20
2262527	Sodium	2.04	Spike	P	0 - 20
2262527	Zinc	1.01	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401304

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262527	Aluminum	2.47	Spike	P	0 - 20
2262527	Antimony	0.859	Spike	P	0 - 20
2262527	Arsenic	0.317	Spike	P	0 - 20
2262527	Beryllium	0.421	Spike	P	0 - 20
2262527	Boron	1.34	Spike	P	0 - 20
2262527	Cadmium	1.02	Spike	P	0 - 20
2262527	Chromium	1.08	Spike	P	0 - 20
2262527	Copper	1.32	Spike	P	0 - 20
2262527	Lead	0.0351	Spike	P	0 - 20
2262527	Nickel	1.10	Spike	P	0 - 20
2262527	Selenium	0.178	Spike	P	0 - 20
2262527	Silver	0.431	Spike	P	0 - 20
2262527	Thallium	1.38	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401680

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263038	Chloride	0.767	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P401681

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263599	Chloride	0.490	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263038	Sulfate	3.13	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263599	Sulfate	1.08	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261556	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261981	Ammonia-N	0.623	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263314	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263203	Kjeldahl Nitrogen	3.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263151	NO2NO3-N	1.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263307	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P401506

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263302	Total-P	2.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P401545

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263315	Total-P	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P401241

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263304	O-Phosphate-P	0.497	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P401252

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263202	Color (true)	1.66	Sample	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P401253

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263311	Color (true)	5.44	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P401463

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263128	Total Alkalinity	0.687	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P401464

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263593	Total Alkalinity	1.05	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P401615

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264848	Total Alkalinity	0.423	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
 Batch ID: P401795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263038	TDS	5.96	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P401796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263577	TDS	5.75	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P401467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263128	Fluoride	1.90	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
 Batch ID: P401468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263593	Fluoride	0.464	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P402092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263151	Organic Carbon	0.220	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
 Batch ID: P402093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263325	Organic Carbon	0.461	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: A106713

Included Lab Sample IDs: 2263304, 2263305, 2263308, 2263317, 2263318, 2263319, 2263320, 2263323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.9	P/P	90 - 110
O-Phosphate-P	99.9	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106714

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

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

Reference Method: SM 2120 B-2011

Run ID: A106715

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	98.9	P/P	90 - 115
Color (true)	98.9	96.6	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106730

Included Lab Sample IDs: 2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110
NO2NO3-N	108	108	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106794

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	104	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106794

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106825

Included Lab Sample IDs: 2263302, 2263303, 2263307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.8	P/P	90 - 110
Total-P	99.8	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106833

Included Lab Sample IDs: 2263350, 2263351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	93.2	94.8	P/P	90 - 110
Aluminum	99.0	98.6	P/P	90 - 110
Antimony	100	97.7	P/P	90 - 110
Antimony	96.1	97.9	P/P	90 - 110
Arsenic	94.3	94.5	P/P	90 - 110
Arsenic	99.4	98.4	P/P	90 - 110
Boron	95.9	92.2	P/P	90 - 110
Boron	96.2	97.6	P/P	90 - 110
Cadmium	93.2	94.0	P/P	90 - 110
Cadmium	96.5	95.1	P/P	90 - 110
Chromium	90.5	91.6	P/P	90 - 110
Chromium	93.5	94.0	P/P	90 - 110
Copper	92.3	92.7	P/P	90 - 110
Copper	97.2	96.8	P/P	90 - 110
Lead	93.1	92.8	P/P	90 - 110
Lead	97.9	95.9	P/P	90 - 110
Nickel	92.6	94.1	P/P	90 - 110
Nickel	98.2	97.7	P/P	90 - 110
Selenium	92.2	92.2	P/P	90 - 110
Selenium	96.3	95.2	P/P	90 - 110
Thallium	91.9	91.4	P/P	90 - 110
Thallium	96.9	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106842

Included Lab Sample IDs: 2263313, 2263314, 2263315, 2263316, 2263322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	98.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106865

Included Lab Sample IDs: 2263309, 2263310, 2263311, 2263312

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106882

Included Lab Sample IDs: 2263302, 2263303, 2263307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	97.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106905

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106905

Included Lab Sample IDs: 2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106917

Included Lab Sample IDs: 2263313, 2263314, 2263315, 2263316, 2263322

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106941

Included Lab Sample IDs: 2263350, 2263351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	101	98.5	P/P	90 - 110
Beryllium	102	101	P/P	90 - 110
Silver	101	99.4	P/P	90 - 110
Silver	100	97.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106958

Included Lab Sample IDs: 2263350, 2263351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	104	105	P/P	90 - 110
Barium	105	109	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Calcium	104	106	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Iron	103	105	P/P	90 - 110
Magnesium	100	101	P/P	90 - 110
Magnesium	103	105	P/P	90 - 110
Manganese	103	109	P/P	90 - 110
Manganese	105	103	P/P	90 - 110
Potassium	101	104	P/P	90 - 110
Potassium	104	105	P/P	90 - 110
Sodium	103	105	P/P	90 - 110
Sodium	106	107	P/P	90 - 110
Zinc	105	109	P/P	90 - 110
Zinc	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107051

Included Lab Sample IDs: 2263307, 2263313, 2263314, 2263315, 2263316, 2263322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	97.0	P/P	90 - 110
Kjeldahl Nitrogen	97.0	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A107085

Included Lab Sample IDs: 2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	97.1	P/P	90 - 110
Organic Carbon	98.0	98.6	P/P	90 - 110
Organic Carbon	98.5	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107173

Included Lab Sample IDs: 2263302, 2263303

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.1	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					2.44	
EPA 200.7 Rev. 4.4	Barium	92.0	96.7	96.3	108		0.482
	Calcium	97.1	100	102	114		1.38
	Iron	96.2	101	103	112		1.79
	Magnesium	98.5	103	105	116		1.75
	Manganese	91.4	95.8	95.2	106		0.578
	Potassium	95.2	99.0	102	107		2.59
	Sodium	99.0	102	105	113		2.04
	Zinc	87.2	91.3	92.2	102		1.01
EPA 200.8 Rev. 5.4	Aluminum	97.0	91.1	93.4	92.1		2.47
	Antimony	94.3	91.2	92.0	92.4		0.859
	Arsenic	96.0	89.3	89.5	90.3		0.317
	Beryllium	102	102	102	101		0.421
	Boron	97.9	92.3	93.8	90.3		1.34
	Cadmium	91.5	88.7	89.6	87.9		1.02
	Chromium	90.7	88.6	85.1	86.1		1.08
	Copper	93.8	88.7	89.9	90.1		1.32
	Lead	93.5	91.3	91.3	90.3		0.0351
	Nickel	94.3	87.6	88.6	92.0		1.10
	Selenium	93.7	87.0	86.9	89.6		0.178
	Silver	113	111	110	111		0.431
	Thallium	97.3	94.1	95.4	94.6		1.38
EPA 300.0 Rev. 2.1	Chloride	101	99.3	99.4		0.767	
	Chloride	101	98.9	101		0.490	
	Sulfate	100	99.0	98.0		3.13	
	Sulfate	98.1	96.2	95.3		1.08	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	100	102			1.23
	Ammonia-N	101	98.2	99.0			0.623
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	96.8	98.5			1.45
	Kjeldahl Nitrogen	103	109	102			3.74
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	104	102			1.30
	NO ₂ NO ₃ -N	106	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	108	109	107			2.41
	Total-P	103	103	106			2.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	100	101			0.497
SM 2120 B-2011	Color (true)	100				1.66	
	Color (true)	99.2				5.44	
SM 2320 B-2011	Total Alkalinity	103				0.687	
	Total Alkalinity	102				1.05	
	Total Alkalinity	103				0.423	
SM 2540 C-2011	TDS					5.96	
	TDS					5.75	
SM 4500 F-C-2011	Fluoride	98.9	98.5	101			1.90
	Fluoride	99.9	100	101			0.464
SM 5310 B-2011	Organic Carbon	96.0	98.0	98.4			0.220
	Organic Carbon	97.0	96.0	96.8			0.461

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2263350, 2263351
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2263350, 2263351
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2263304, 2263305, 2263308, 2263317, 2263318, 2263319, 2263320, 2263323
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2263350, 2263351
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2263302, 2263303, 2263307, 2263313, 2263314, 2263315, 2263316, 2263322

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	07/20/2021			07/20/2021 15:51	Sarah A Nixon	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
EPA 200.7 Rev. 4.4	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/30/2021 18:55	Betina Topolski	2263351
	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/30/2021 22:39	Betina Topolski	2263350
EPA 200.8 Rev. 5.4	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/26/2021 18:19	Alexander Thompson	2263351
	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/26/2021 21:54	Alexander Thompson	2263350
	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/29/2021 13:49	McKinley C Carter	2263351
	07/20/2021	07/21/2021 14:50	Elliott D. Healy	07/29/2021 16:26	McKinley C Carter	2263350
EPA 300.0 Rev. 2.1	07/20/2021			07/28/2021 23:19	Lipi Saha	2263300
	07/20/2021			07/28/2021 23:31	Lipi Saha	2263301
	07/20/2021			07/28/2021 23:43	Lipi Saha	2263306
	07/20/2021			07/28/2021 23:55	Lipi Saha	2263309
	07/20/2021			07/29/2021 00:07	Lipi Saha	2263310
	07/20/2021			07/29/2021 00:19	Lipi Saha	2263311
	07/20/2021			07/29/2021 02:45	Lipi Saha	2263312
	07/20/2021			07/29/2021 03:09	Lipi Saha	2263321
EPA 350.1 Rev. 2.0	07/20/2021			07/28/2021 14:34	Roberta Tatti	2263302
	07/20/2021			07/28/2021 14:35	Roberta Tatti	2263303
	07/20/2021			07/28/2021 14:37	Roberta Tatti	2263307
	07/20/2021			07/29/2021 12:21	Ping Hua	2263313
	07/20/2021			07/29/2021 12:22	Ping Hua	2263314
	07/20/2021			07/29/2021 12:24	Ping Hua	2263315
	07/20/2021			07/29/2021 12:25	Ping Hua	2263316
	07/20/2021			07/29/2021 12:29	Ping Hua	2263322
EPA 351.2 Rev. 2.0	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:12	Virginia P. Brown	2263307
	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:13	Virginia P. Brown	2263313
	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:15	Virginia P. Brown	2263314
	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:20	Virginia P. Brown	2263315
	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:24	Virginia P. Brown	2263316
	07/20/2021	08/03/2021 18:20	Benjamin T. Nordmann	08/04/2021 14:26	Virginia P. Brown	2263322
	07/20/2021	08/10/2021 12:37	Benjamin T. Nordmann	08/11/2021 10:28	Virginia P. Brown	2263302
	07/20/2021	08/10/2021 12:37	Benjamin T. Nordmann	08/11/2021 10:29	Virginia P. Brown	2263303
EPA 353.2 Rev. 2.0	07/20/2021			07/21/2021 10:18	Beverly Y. Sanders	2263302
	07/20/2021			07/21/2021 10:19	Beverly Y. Sanders	2263303
	07/20/2021			07/21/2021 11:17	Beverly Y. Sanders	2263307
	07/20/2021			07/21/2021 11:22	Beverly Y. Sanders	2263313
	07/20/2021			07/21/2021 11:23	Beverly Y. Sanders	2263314
	07/20/2021			07/21/2021 11:24	Beverly Y. Sanders	2263315
	07/20/2021			07/21/2021 11:25	Beverly Y. Sanders	2263316
	07/20/2021			07/21/2021 11:27	Beverly Y. Sanders	2263322

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	07/20/2021	07/23/2021 17:05	Madeline Gruver	07/26/2021 13:37	Shengyu Ding	2263302
	07/20/2021	07/23/2021 17:05	Madeline Gruver	07/26/2021 13:45	Shengyu Ding	2263303
	07/20/2021	07/23/2021 17:05	Madeline Gruver	07/26/2021 13:46	Shengyu Ding	2263307
	07/20/2021	07/26/2021 16:37	Simonne.V. Calhoun	07/27/2021 09:55	Shengyu Ding	2263322
	07/20/2021	07/26/2021 16:37	Simonne.V. Calhoun	07/27/2021 09:58	Shengyu Ding	2263313
	07/20/2021	07/26/2021 16:37	Simonne.V. Calhoun	07/27/2021 09:59	Shengyu Ding	2263314
	07/20/2021	07/26/2021 16:37	Simonne.V. Calhoun	07/27/2021 10:00	Shengyu Ding	2263315
	07/20/2021	07/26/2021 16:37	Simonne.V. Calhoun	07/27/2021 10:01	Shengyu Ding	2263316
EPA 365.1 Rev. 2.0 dissolved	07/20/2021			07/20/2021 15:49	Ping Hua	2263304
	07/20/2021			07/20/2021 15:52	Ping Hua	2263305
	07/20/2021			07/20/2021 15:53	Ping Hua	2263308, 2263317
	07/20/2021			07/20/2021 15:54	Ping Hua	2263318
	07/20/2021			07/20/2021 15:55	Ping Hua	2263319
	07/20/2021			07/20/2021 15:56	Ping Hua	2263320
	07/20/2021			07/20/2021 16:02	Ping Hua	2263323
SM 2120 B-2011	07/20/2021			07/20/2021 16:42	Madeline Gruver	2263300
	07/20/2021			07/20/2021 16:43	Madeline Gruver	2263301
	07/20/2021			07/20/2021 16:44	Madeline Gruver	2263306
	07/20/2021			07/20/2021 16:47	Madeline Gruver	2263309
	07/20/2021			07/20/2021 16:48	Madeline Gruver	2263310
	07/20/2021			07/20/2021 16:50	Madeline Gruver	2263311, 2263312
	07/20/2021			07/20/2021 16:51	Madeline Gruver	2263321
SM 2320 B-2011	07/20/2021			07/22/2021 21:54	Dale L. Simmons	2263300
	07/20/2021			07/22/2021 22:03	Dale L. Simmons	2263301
	07/20/2021			07/22/2021 22:13	Dale L. Simmons	2263306
	07/20/2021			07/23/2021 01:02	Dale L. Simmons	2263321
	07/20/2021			07/27/2021 22:38	Dale L. Simmons	2263309
	07/20/2021			07/27/2021 22:45	Dale L. Simmons	2263310
	07/20/2021			07/27/2021 22:52	Dale L. Simmons	2263311
SM 2340B	07/20/2021			07/27/2021 22:58	Dale L. Simmons	2263312
	07/20/2021			07/30/2021 18:55	Betina Topolski	2263351
SM 2540 C-2011	07/20/2021			07/30/2021 22:39	Betina Topolski	2263350
	07/20/2021			07/23/2021 15:22	Yijie Li	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 2540 D-2011	07/20/2021			07/23/2021 15:22	Yijie Li	2263300, 2263301, 2263306, 2263309, 2263310, 2263311, 2263312, 2263321
SM 4500 F-C-2011	07/20/2021			07/22/2021 21:54	Dale L. Simmons	2263300
	07/20/2021			07/22/2021 22:03	Dale L. Simmons	2263301
	07/20/2021			07/22/2021 22:13	Dale L. Simmons	2263306
	07/20/2021			07/22/2021 23:42	Dale L. Simmons	2263309

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	07/20/2021			07/22/2021 23:52	Dale L. Simmons	2263310
	07/20/2021			07/23/2021 00:01	Dale L. Simmons	2263311
	07/20/2021			07/23/2021 00:45	Dale L. Simmons	2263312
	07/20/2021			07/23/2021 01:02	Dale L. Simmons	2263321
SM 5310 B-2011	07/20/2021			08/04/2021 21:54	Madeline Gruver	2263302
	07/20/2021			08/05/2021 02:33	Madeline Gruver	2263303
	07/20/2021			08/05/2021 02:46	Madeline Gruver	2263307
	07/20/2021			08/05/2021 02:59	Madeline Gruver	2263313
	07/20/2021			08/05/2021 05:01	Madeline Gruver	2263314
	07/20/2021			08/05/2021 05:14	Madeline Gruver	2263315
	07/20/2021			08/05/2021 05:27	Madeline Gruver	2263316
	07/20/2021			08/05/2021 05:39	Madeline Gruver	2263322