

Chemical Analysis Report

NW-DIST-2021-09-28-01

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

Event Description: **Pace Run**
Request ID: **RQ-2021-09-20-19**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 21-OCT-2021 12:05

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

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: Bucket Branch downstream of Pat Brown Road Collection Date/Time: 09/27/2021 10:00

Field ID: G4NW0532

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278610	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P404490	
		Sulfate	1.2		mg SO4/L	P404495	
		Color (true)	29		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	3.2		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	32		mg/L	P404764	
	SM 2540 D-2011	TSS	2	I	mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278611	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P404475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P404397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P404321	MS
	SM 5310 B-2011	Organic Carbon	2.6		mg C/L	P404841	
2278612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P404292	
2278649	EPA 200.7 Rev. 4.4	Barium	25.0		ug/L	P404421	
		Calcium	1.54		mg/L	P404421	
		Iron	450		ug/L	P404421	
		Magnesium	1.18		mg/L	P404421	
		Manganese	29.9		ug/L	P404421	
		Potassium	0.50	I	mg/L	P404421	
		Sodium	2.0	I	mg/L	P404421	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P404421	
		Aluminum	84		ug/L	P404421	
		Antimony	0.050	U	ug/L	P404421	
		Arsenic	0.20	I	ug/L	P404421	
		Beryllium	0.015	I	ug/L	P404421	
		Boron**	12.5		ug/L	P404421	
		Cadmium	0.020	U	ug/L	P404421	
		Chromium	0.40	U	ug/L	P404421	
		Copper	0.40	U	ug/L	P404421	
		Lead	0.20	U	ug/L	P404421	
		Nickel	0.50	U	ug/L	P404421	
		Selenium	0.20	U	ug/L	P404421	
		Silver	0.010	U	ug/L	P404421	
		Thallium	0.10	U	ug/L	P404421	
		Hardness	8.7		mg/L	P404421	

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: 09/27/2021 09:35

Field ID: G4NW0360

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278613	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P404490	
		Sulfate	0.45	I	mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	11		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	2.7		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	26		mg/L	P404765	
	SM 2540 D-2011	TSS	4	I	mg/L	P404757	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P404475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P404397	
2278617	EPA 353.2 Rev. 2.0	NO2NO3-N	0.99		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P404321	MS
	SM 5310 B-2011	Organic Carbon	1.0		mg C/L	P404841	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404292	

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 Coldwater Creek below CR191

Collection Date/Time: 09/27/2021 10:20

Field ID: G4NW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278604	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P404490	
		Sulfate	0.84		mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	26	A	PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	1.8	I	mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	26		mg/L	P404764	
	SM 2540 D-2011	TSS	5	I	mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278606	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P404475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P404397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.98		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P404321	MS
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P404841	
2278608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404292	

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: Coldwater Creek West Fork downstream of HWY 87

Collection Date/Time: 09/27/2021 11:10

Field ID: G4NW0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278614	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P404490	
		Sulfate	1.0		mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	23		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	2.9		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	36		mg/L	P404765	
	SM 2540 D-2011	TSS	6	I	mg/L	P404757	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278618	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P404475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P404397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.8		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P404321	MS
	SM 5310 B-2011	Organic Carbon	2.4		mg C/L	P404841	
2278622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404292	

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: Coldwater Creek West Fork on CR 178

Collection Date/Time: 09/27/2021 11:30

Field ID: G4NW0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278615	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P404490	
		Sulfate	1.5		mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	27		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	4.1		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	39		mg/L	P404765	
	SM 2540 D-2011	TSS	6	I	mg/L	P404757	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278619	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P404477	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P404397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P404323	
	SM 5310 B-2011	Organic Carbon	2.9		mg C/L	P404841	
2278623	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404292	

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 Coldwater Creek end of Steel Bridge Rd

Collection Date/Time: 09/27/2021 10:45

Field ID: G4NW0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278605	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P404490	
		Sulfate	0.85		mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	27		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	1.9	I	mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	29		mg/L	P404764	
	SM 2540 D-2011	TSS	5	I	mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P404475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P404397	
2278607	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P404335	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P404321	MS
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P404841	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P404292	
2278609	EPA 365.1 Rev. 2.0 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: EQB

Collection Date/Time: 09/27/2021 11:35

Field ID: EB_O09272021

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278625	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P404329	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P404490	
		Sulfate	0.20	U	mg SO4/L	P404495	
		Color (true)	2.5	U	PCU	P404282	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	15	U	mg/L	P404764	
	SM 2540 D-2011	TSS	2	U	mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278626	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P404477	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P404394	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P404336	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P404323	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P404841	
2278627	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404293	
2278650	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P404421	
		Calcium	0.075	U	mg/L	P404421	
		Iron	30	U	ug/L	P404421	
		Magnesium	0.040	U	mg/L	P404421	
		Manganese	1.0	U	ug/L	P404421	
		Potassium	0.30	U	mg/L	P404421	
		Sodium	0.50	U	mg/L	P404421	
	EPA 200.8 Rev. 5.4	Zinc	17	I	ug/L	P404421	
		Aluminum	5.0	U	ug/L	P404421	
		Antimony	0.050	U	ug/L	P404421	
		Arsenic	0.050	U	ug/L	P404421	
		Beryllium	0.010	U	ug/L	P404421	
		Boron**	2.0	U	ug/L	P404421	
		Cadmium	0.020	U	ug/L	P404421	
		Chromium	0.40	U	ug/L	P404421	
		Copper	4.65		ug/L	P404421	
		Lead	0.20	U	ug/L	P404421	
		Nickel	0.50	U	ug/L	P404421	
		Selenium	0.20	U	ug/L	P404421	
		Silver	0.010	U	ug/L	P404421	
		Thallium	0.10	U	ug/L	P404421	
		Hardness	0.35	U	mg/L	P404421	
	SM 2340B	Hardness	0.35	U	mg/L	P404421	

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 10/01/2021.

EPA 200.7 Rev. 4.4: The zinc result was confirmed in the undigested sample on 10/01/2021.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 10/01/2021.

Sample Location: Clear Creek upstream of HWY 87A

Collection Date/Time: 09/27/2021 12:00

Field ID: G4NW0510

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278616	EPA 180.1 Rev. 2.0	Turbidity	2.9	A	NTU	P404368	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P404490	
		Sulfate	0.33	I	mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	5.2	I	PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	2.8		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	23	I	mg/L	P404765	
	SM 2540 D-2011	TSS	2	I	mg/L	P404757	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278620	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P404477	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.092	I	mg N/L	P404394	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.7		mg N/L	P404336	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P404323	
	SM 5310 B-2011	Organic Carbon	0.80	I	mg C/L	P404841	
2278624	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P404293	

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: P404328

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404329

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404368

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404421

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: P404421

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: P404490

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: P404495

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404475

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404477

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404394

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404335

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404336

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404321

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404323

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: P404292

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404293

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

Reference Method: SM 2120 B-2011
Batch ID: P404281

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P404282

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P404535

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

Reference Method: SM 2540 C-2011
Batch ID: P404764

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P404765

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404756

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404757

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404841

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: P404421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Manganese	99.7		P	85 - 115
Potassium	99.9		P	85 - 115
Sodium	102		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.4		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	93.4		P	85 - 115
Beryllium	93.1		P	85 - 115
Boron	96.8		P	85 - 115
Cadmium	94.9		P	85 - 115
Chromium	93.2		P	85 - 115
Copper	94.2		P	85 - 115
Lead	97.0		P	85 - 115
Nickel	94.5		P	85 - 115
Selenium	96.6		P	85 - 115
Silver	100		P	85 - 115
Thallium	97.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404490

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404475

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404394

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404335

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404336

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404321

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404323

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: P404292

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404293

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

Reference Method: SM 2120 B-2011
Batch ID: P404281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P404282

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P404535

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

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

Reference Method: SM 5310 B-2011
Batch ID: P404841

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: P404421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278649	Barium	101	102	P/P	80 - 120
2278649	Calcium	101	103	P/P	80 - 120
2278649	Iron	105	107	P/P	80 - 120
2278649	Magnesium	104	107	P/P	80 - 120
2278649	Manganese	99.9	100	P/P	80 - 120
2278649	Potassium	98.0	99.9	P/P	80 - 120
2278649	Sodium	96.1	101	P/P	80 - 120
2278649	Zinc	101	102	P/P	80 - 120
2278895	Barium	100		P	80 - 120
2278895	Calcium	101		P	80 - 120
2278895	Iron	105		P	80 - 120
2278895	Magnesium	99.8		P	80 - 120
2278895	Manganese	98.6		P	80 - 120
2278895	Potassium	98.7		P	80 - 120
2278895	Sodium	99.0		P	80 - 120
2278895	Zinc	99.1		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P404421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278649	Aluminum	98.3	101	P/P	80 - 120
2278649	Antimony	99.5	101	P/P	80 - 120
2278649	Arsenic	93.2	95.4	P/P	80 - 120
2278649	Beryllium	93.4	93.7	P/P	80 - 120
2278649	Boron	94.6	97.0	P/P	80 - 120
2278649	Cadmium	94.5	95.1	P/P	80 - 120
2278649	Chromium	94.7	96.8	P/P	80 - 120
2278649	Copper	96.2	97.8	P/P	80 - 120
2278649	Lead	98.0	98.6	P/P	80 - 120
2278649	Nickel	96.1	97.9	P/P	80 - 120
2278649	Selenium	97.2	98.6	P/P	80 - 120
2278649	Silver	98.7	101	P/P	80 - 120
2278649	Thallium	99.1	102	P/P	80 - 120
2278895	Aluminum	92.8		P	80 - 120
2278895	Antimony	97.8		P	80 - 120
2278895	Arsenic	92.1		P	80 - 120
2278895	Beryllium	94.6		P	80 - 120
2278895	Boron	95.7		P	80 - 120
2278895	Cadmium	93.2		P	80 - 120
2278895	Chromium	93.1		P	80 - 120
2278895	Copper	93.0		P	80 - 120
2278895	Lead	96.4		P	80 - 120
2278895	Nickel	93.6		P	80 - 120
2278895	Selenium	95.6		P	80 - 120
2278895	Silver	99.4		P	80 - 120
2278895	Thallium	99.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P404490

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: P404490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277567	Chloride	103		P	90 - 110
2278659	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277567	Sulfate	105		P	90 - 110
2278659	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278617	Ammonia-N	97.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278632	Ammonia-N	94.2	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278632	Kjeldahl Nitrogen	94.9	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278556	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278556	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278632	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278661	Total-P	111	114	F/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278195	Total-P	109	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278609	O-Phosphate-P	99.1	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278633	O-Phosphate-P	95.8	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278659	Fluoride	101	101	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278606	Organic Carbon	94.6	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278422	Turbidity	1.66	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Turbidity	8.88	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278616	Turbidity	12.8	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278649	Barium	0.188	Spike	P	0 - 20
2278649	Calcium	1.36	Spike	P	0 - 20
2278649	Iron	1.78	Spike	P	0 - 20
2278649	Magnesium	1.80	Spike	P	0 - 20
2278649	Manganese	0.321	Spike	P	0 - 20
2278649	Potassium	1.76	Spike	P	0 - 20
2278649	Sodium	3.28	Spike	P	0 - 20
2278649	Zinc	0.763	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278649	Aluminum	2.56	Spike	P	0 - 20
2278649	Antimony	1.42	Spike	P	0 - 20
2278649	Arsenic	2.25	Spike	P	0 - 20
2278649	Beryllium	0.352	Spike	P	0 - 20
2278649	Boron	2.22	Spike	P	0 - 20
2278649	Cadmium	0.672	Spike	P	0 - 20
2278649	Chromium	2.20	Spike	P	0 - 20
2278649	Copper	1.56	Spike	P	0 - 20
2278649	Lead	0.542	Spike	P	0 - 20
2278649	Nickel	1.90	Spike	P	0 - 20
2278649	Selenium	1.35	Spike	P	0 - 20
2278649	Silver	2.07	Spike	P	0 - 20
2278649	Thallium	2.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Chloride	0.527	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Sulfate	0.542	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278617	Ammonia-N	0.884	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278632	Ammonia-N	0.760	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278632	Kjeldahl Nitrogen	2.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278556	Kjeldahl Nitrogen	2.23	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278556	NO2NO3-N	0.399	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278632	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404321

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278661	Total-P	2.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404323

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278195	Total-P	0.751	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404292

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278609	O-Phosphate-P	0.101	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404293

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278633	O-Phosphate-P	1.45	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P404281

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278604	Color (true)	1.99	Sample	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P404282

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278789	Color (true)	3.91	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P404535

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Total Alkalinity	1.33	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P404764

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278718	TDS	3.17	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P404765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278721	TDS	4.44	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278606	Organic Carbon	0.499	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A108034

Included Lab Sample IDs: 2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115
Color (true)	99.8	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108036

Included Lab Sample IDs: 2278608, 2278609, 2278612, 2278621, 2278622, 2278623, 2278624, 2278627

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	99.1	P/P	90 - 110
O-Phosphate-P	97.6	97.9	P/P	90 - 110
O-Phosphate-P	97.9	97.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108050

Included Lab Sample IDs: 2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108052

Included Lab Sample IDs: 2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108065

Included Lab Sample IDs: 2278616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108100

Included Lab Sample IDs: 2278606, 2278607, 2278611, 2278617, 2278618, 2278619

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108103

Included Lab Sample IDs: 2278620, 2278626

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108109

Included Lab Sample IDs: 2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	97.8	P/P	90 - 110
Ammonia-N	99.1	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108110

Included Lab Sample IDs: 2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	98.8	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108115

Included Lab Sample IDs: 2278649, 2278650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.4	97.7	P/P	90 - 110
Barium	99.6	97.4	P/P	95 - 105
Calcium	101	102	P/P	95 - 105
Calcium	102	102	P/P	90 - 110
Iron	102	102	P/P	95 - 105
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	95 - 105
Magnesium	101	101	P/P	90 - 110
Manganese	101	101	P/P	95 - 105
Manganese	101	102	P/P	90 - 110
Potassium	98.4	98.5	P/P	90 - 110
Potassium	99.1	98.4	P/P	95 - 105
Sodium	100	99.6	P/P	95 - 105
Sodium	99.6	99.4	P/P	90 - 110
Zinc	100	102	P/P	95 - 105
Zinc	102	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A108118

Included Lab Sample IDs: 2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108124

Included Lab Sample IDs: 2278649, 2278650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.7	97.1	P/P	90 - 110
Antimony	102	101	P/P	90 - 110
Arsenic	95.5	95.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108124

Included Lab Sample IDs: 2278649, 2278650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	94.0	94.3	P/P	90 - 110
Boron	96.4	97.5	P/P	90 - 110
Cadmium	95.5	95.4	P/P	90 - 110
Chromium	93.9	94.1	P/P	90 - 110
Copper	96.0	94.0	P/P	90 - 110
Lead	95.3	95.5	P/P	90 - 110
Nickel	96.4	94.6	P/P	90 - 110
Selenium	96.2	96.1	P/P	90 - 110
Silver	101	99.4	P/P	90 - 110
Thallium	98.4	98.7	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A108136

Included Lab Sample IDs: 2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108136

Included Lab Sample IDs: 2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625

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

Reference Method: SM 5310 B-2011

Run ID: A108260

Included Lab Sample IDs: 2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.3	94.9	P/P	90 - 110
Organic Carbon	94.8	94.3	P/P	90 - 110
Organic Carbon	95.7	94.8	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					1.66	
	Turbidity					8.88	
	Turbidity					12.8	
EPA 200.7 Rev. 4.4	Barium	100	101	102	100		0.188
	Calcium	104	101	103	101		1.36
	Iron	106	105	107	105		1.78
	Magnesium	106	104	107	99.8		1.80
	Manganese	99.7	99.9	100	98.6		0.321
	Potassium	99.9	98.0	99.9	98.7		1.76
	Sodium	102	96.1	101	99.0		3.28
	Zinc	100	101	102	99.1		0.763
EPA 200.8 Rev. 5.4	Aluminum	97.4	98.3	101	92.8		2.56
	Antimony	100	99.5	101	97.8		1.42
	Arsenic	93.4	93.2	95.4	92.1		2.25
	Beryllium	93.1	93.4	93.7	94.6		0.352
	Boron	96.8	94.6	97.0	95.7		2.22
	Cadmium	94.9	94.5	95.1	93.2		0.672
	Chromium	93.2	94.7	96.8	93.1		2.20
	Copper	94.2	96.2	97.8	93.0		1.56
	Lead	97.0	98.0	98.6	96.4		0.542
	Nickel	94.5	93.6	96.1	97.9		1.90
	Selenium	96.6	97.2	98.6	95.6		1.35
	Silver	100	98.7	101	99.4		2.07
	Thallium	97.2	99.1	102	99.6		2.58
EPA 300.0 Rev. 2.1	Chloride	101	103	103		0.527	
	Sulfate	104	106	105		0.542	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	97.0	98.0			0.884
	Ammonia-N	95.2	94.2	95.0			0.760
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	94.9	98.3			2.51
	Kjeldahl Nitrogen	107	103	100			2.23
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	101			0.399
	NO2NO3-N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	107	111	114			2.01
	Total-P	106	109	109			0.751
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	99.1	99.0			0.101
	O-Phosphate-P	99.1	95.8	97.2			1.45
SM 2120 B-2011	Color (true)	99.8				1.99	
	Color (true)	99.6				3.91	
SM 2320 B-2011	Total Alkalinity	100				1.33	
SM 2540 C-2011	TDS					3.17	
	TDS					4.44	
SM 4500 F-C-2011	Fluoride	100	101	101			0.472
SM 5310 B-2011	Organic Carbon	97.0	94.6	95.2			0.499

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2278649, 2278650
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2278649, 2278650

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2278608, 2278609, 2278612, 2278621, 2278622, 2278623, 2278624, 2278627
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2278649, 2278650
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2278606, 2278607, 2278611, 2278617, 2278618, 2278619, 2278620, 2278626

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	09/28/2021			09/28/2021 16:48	Khloe J Berg	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278625
	09/28/2021			09/29/2021 10:26	Khloe J Berg	2278616
EPA 200.7 Rev. 4.4	09/28/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 15:37	Josef B Mick	2278650
	09/28/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 17:15	Josef B Mick	2278649
EPA 200.8 Rev. 5.4	09/28/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 21:15	McKinley C Carter	2278650
	09/28/2021	10/01/2021 10:00	Emily M Philpot	10/01/2021 22:09	McKinley C Carter	2278649
EPA 300.0 Rev. 2.1	09/28/2021			10/01/2021 16:14	Lipi Saha	2278604
	09/28/2021			10/01/2021 16:26	Lipi Saha	2278605
	09/28/2021			10/01/2021 16:38	Lipi Saha	2278610
	09/28/2021			10/01/2021 16:50	Lipi Saha	2278613
	09/28/2021			10/01/2021 17:02	Lipi Saha	2278614
	09/28/2021			10/01/2021 17:39	Lipi Saha	2278615
	09/28/2021			10/01/2021 17:51	Lipi Saha	2278625
	09/28/2021			10/01/2021 18:03	Lipi Saha	2278616
EPA 350.1 Rev. 2.0	09/28/2021			10/01/2021 12:47	Ping Hua	2278617
	09/28/2021			10/01/2021 12:58	Ping Hua	2278606
	09/28/2021			10/01/2021 12:59	Ping Hua	2278607
	09/28/2021			10/01/2021 13:00	Ping Hua	2278611
	09/28/2021			10/01/2021 13:02	Ping Hua	2278618
	09/28/2021			10/01/2021 13:44	Ping Hua	2278619
	09/28/2021			10/01/2021 13:46	Ping Hua	2278620
	09/28/2021			10/01/2021 13:54	Ping Hua	2278626
EPA 351.2 Rev. 2.0	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:52	Alexandra J Mattheus	2278606
	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:53	Alexandra J Mattheus	2278607
	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:55	Alexandra J Mattheus	2278611
	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:56	Alexandra J Mattheus	2278617
	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:58	Alexandra J Mattheus	2278618
	09/28/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 11:00	Alexandra J Mattheus	2278619
	09/28/2021	09/30/2021 12:55	Benjamin T. Nordmann	10/01/2021 12:39	Alexandra J Mattheus	2278620
	09/28/2021	09/30/2021 12:55	Benjamin T. Nordmann	10/01/2021 12:41	Alexandra J Mattheus	2278626
EPA 353.2 Rev. 2.0	09/28/2021			09/29/2021 10:16	Beverly Y. Sanders	2278626
	09/28/2021			09/29/2021 10:46	Beverly Y. Sanders	2278606
	09/28/2021			09/29/2021 10:47	Beverly Y. Sanders	2278607
	09/28/2021			09/29/2021 10:52	Beverly Y. Sanders	2278611
	09/28/2021			09/29/2021 10:53	Beverly Y. Sanders	2278617
	09/28/2021			09/29/2021 10:54	Beverly Y. Sanders	2278618
	09/28/2021			09/29/2021 10:55	Beverly Y. Sanders	2278619
	09/28/2021			09/29/2021 10:59	Beverly Y. Sanders	2278620
EPA 365.1 Rev. 2.0	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:27	Sarah A Nixon	2278606

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	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:28	Sarah A Nixon	2278607
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:29	Sarah A Nixon	2278611
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:30	Sarah A Nixon	2278617
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:31	Sarah A Nixon	2278618
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:41	Sarah A Nixon	2278626
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:45	Sarah A Nixon	2278619
	09/28/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:46	Sarah A Nixon	2278620
	09/28/2021			09/28/2021 14:38	James L Waggeberby	2278609
EPA 365.1 Rev. 2.0 dissolved	09/28/2021			09/28/2021 14:48	James L Waggeberby	2278608
	09/28/2021			09/28/2021 14:49	James L Waggeberby	2278612
	09/28/2021			09/28/2021 14:50	James L Waggeberby	2278621
	09/28/2021			09/28/2021 14:51	James L Waggeberby	2278622
	09/28/2021			09/28/2021 14:52	James L Waggeberby	2278623
	09/28/2021			09/28/2021 15:02	James L Waggeberby	2278624
	09/28/2021			09/28/2021 15:03	James L Waggeberby	2278627
	09/28/2021			09/28/2021 14:43	Benjamin T. Nordmann	2278604
SM 2120 B-2011	09/28/2021			09/28/2021 14:44	Benjamin T. Nordmann	2278605, 2278610
	09/28/2021			09/28/2021 14:45	Benjamin T. Nordmann	2278613
	09/28/2021			09/28/2021 14:46	Benjamin T. Nordmann	2278614, 2278615
	09/28/2021			09/28/2021 14:47	Benjamin T. Nordmann	2278616
	09/28/2021			09/28/2021 14:50	Benjamin T. Nordmann	2278625
	09/28/2021			09/30/2021 22:29	Dale L. Simmons	2278604
SM 2320 B-2011	09/28/2021			09/30/2021 22:38	Dale L. Simmons	2278605
	09/28/2021			09/30/2021 22:48	Dale L. Simmons	2278610
	09/28/2021			09/30/2021 22:57	Dale L. Simmons	2278613
	09/28/2021			09/30/2021 23:06	Dale L. Simmons	2278614
	09/28/2021			09/30/2021 23:16	Dale L. Simmons	2278615
	09/28/2021			09/30/2021 23:25	Dale L. Simmons	2278616
	09/28/2021			09/30/2021 23:34	Dale L. Simmons	2278625
	09/28/2021			10/01/2021 15:37	Josef B Mick	2278650
SM 2340B	09/28/2021			10/01/2021 17:15	Josef B Mick	2278649
SM 2540 C-2011	09/28/2021			09/30/2021 15:26	Yijie Li	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 2540 D-2011	09/28/2021			09/30/2021 15:26	Yijie Li	2278604, 2278605, 2278610, 2278613, 2278614, 2278615, 2278616, 2278625
SM 4500 F-C-2011	09/28/2021			09/30/2021 22:29	Dale L. Simmons	2278604
	09/28/2021			09/30/2021 22:38	Dale L. Simmons	2278605
	09/28/2021			09/30/2021 22:48	Dale L. Simmons	2278610
	09/28/2021			09/30/2021 22:57	Dale L. Simmons	2278613
	09/28/2021			09/30/2021 23:06	Dale L. Simmons	2278614

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	09/28/2021			09/30/2021 23:16	Dale L. Simmons	2278615
	09/28/2021			09/30/2021 23:25	Dale L. Simmons	2278616
	09/28/2021			09/30/2021 23:34	Dale L. Simmons	2278625
SM 5310 B-2011	09/28/2021			10/06/2021 18:09	Khloe J Berg	2278606
	09/28/2021			10/06/2021 21:21	Khloe J Berg	2278607
	09/28/2021			10/06/2021 21:31	Khloe J Berg	2278611
	09/28/2021			10/06/2021 21:40	Khloe J Berg	2278617
	09/28/2021			10/06/2021 22:09	Khloe J Berg	2278618
	09/28/2021			10/06/2021 22:18	Khloe J Berg	2278619
	09/28/2021			10/06/2021 22:30	Khloe J Berg	2278620
	09/28/2021			10/06/2021 22:39	Khloe J Berg	2278626