

Chemical Analysis Report

NW-DIST-2021-09-15-02

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

Event Description: **Milton East Run**
Request ID: **RQ-2021-09-13-22**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-OCT-2021 16:28

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

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Collins Mill Creek upstream of Conecuh Street Collection Date/Time: 09/13/2021 08:55

Field ID: G4NW0507

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276038	EPA 180.1 Rev. 2.0	Turbidity	1.4	Q	NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P403866	
		Sulfate	1.5		mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	9.9	Q	PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	40		mg/L	P404174	
	SM 2540 D-2011	TSS	2	I	mg/L	P404002	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2276039	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P403914	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	1.7		mg C/L	P403961	
2276040	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P403746	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired prior to receipt.

SM 2120 B-2011: The sample expired prior to receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.

Sample Location: Ates Creek upstream of Fish Hatchery Road

Collection Date/Time: 09/13/2021 09:45

Field ID: G4NW0525

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276062	EPA 200.7 Rev. 4.4	Barium	10.6		ug/L	P403819	
		Calcium	1.03		mg/L	P403819	
		Iron	1.01E+03		ug/L	P403819	
		Magnesium	0.56		mg/L	P403819	
		Manganese	35.1		ug/L	P403819	
		Potassium	0.35	I	mg/L	P403819	
		Sodium	3.0		mg/L	P403819	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P403819	
		Aluminum	74		ug/L	P403819	
		Antimony	0.050	U	ug/L	P403819	
		Arsenic	0.30		ug/L	P403819	
		Beryllium	0.014	I	ug/L	P403819	
		Boron**	10.1		ug/L	P403819	
		Cadmium	0.020	U	ug/L	P403819	
		Chromium	0.40	U	ug/L	P403819	
		Copper	0.40	U	ug/L	P403819	
		Lead	0.20	U	ug/L	P403819	
		Nickel	0.50	U	ug/L	P403819	
		Selenium	0.20	U	ug/L	P403819	
		Silver	0.010	U	ug/L	P403819	
		Thallium	0.10	U	ug/L	P403819	
	SM 2340B	Hardness	4.9		mg/L	P403819	

Sample Location: Bear Creek @ Forest Rd. 0.7 Miles West of Bear Lake **Collection Date/Time: 09/13/2021 10:10**

Field ID: G4NW0380

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276023	EPA 180.1 Rev. 2.0	Turbidity	3.4	Q	NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P403866	
		Sulfate	0.39	I	mg SO4/L	P403867	
		Color (true)	46	Q	PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	3.7		mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	20	I	mg/L	P404174	
	SM 2540 D-2011	TSS	3	I	mg/L	P404002	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2276025	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P403913	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	3.3		mg C/L	P404048	
2276027	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P403746	
2276060	EPA 200.7 Rev. 4.4	Barium	9.5		ug/L	P403819	
		Calcium	1.36		mg/L	P403819	
		Iron	1.27E+03		ug/L	P403819	
		Magnesium	0.60		mg/L	P403819	
		Manganese	37.5		ug/L	P403819	
		Potassium	0.30	U	mg/L	P403819	
		Sodium	1.5	I	mg/L	P403819	
		Zinc	5.0	U	ug/L	P403819	
	EPA 200.8 Rev. 5.4	Aluminum	39		ug/L	P403819	
		Antimony	0.050	U	ug/L	P403819	
		Arsenic	0.46		ug/L	P403819	
		Beryllium	0.015	I	ug/L	P403819	
		Boron**	9.1		ug/L	P403819	
		Cadmium	0.020	U	ug/L	P403819	
		Chromium	0.40	U	ug/L	P403819	
		Copper	0.40	U	ug/L	P403819	
		Lead	0.20	U	ug/L	P403819	
		Nickel	0.50	U	ug/L	P403819	
		Selenium	0.20	U	ug/L	P403819	
		Silver	0.010	U	ug/L	P403819	
		Thallium	0.10	U	ug/L	P403819	
	SM 2340B	Hardness	5.9		mg/L	P403819	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B-2011: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Big Coldwater Creek upstream of HWY 4

Collection Date/Time: 09/13/2021 10:45

Field ID: G4NW0502

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276029	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P403866	
		Sulfate	0.66		mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	34	Q	PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	3.1		mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	37		mg/L	P404174	
	SM 2540 D-2011	TSS	5	I	mg/L	P404002	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P403932	
2276032	EPA 353.2 Rev. 2.0	NO2NO3-N	0.84		mg N/L	P403913	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	3.9		mg C/L	P404048	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P403746	

Ref. Method and Comment:

SM 2120 B-2011: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Manning Creek at Whitfield Road (North Side) Collection Date/Time: 09/13/2021 11:15

Field ID: G4NW0200

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276030	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P403866	
		Sulfate	0.35	I	mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	50		PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	24	I	mg/L	P404174	
	SM 2540 D-2011	TSS	4	I	mg/L	P404002	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2276033	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P404038	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	6.2		mg C/L	P404048	
2276036	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403746	

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 West fork upstream of Walling Rd

Collection Date/Time: 09/13/2021 11:45

Field ID: G4NW0436

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276024	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P403866	
		Sulfate	1.4		mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	45	A	PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	4.1		mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	37		mg/L	P404174	
	SM 2540 D-2011	TSS	11		mg/L	P404002	
2276026	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P403913	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P403840	
2276028	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P404048	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403746	
2276061	EPA 200.7 Rev. 4.4	Barium	53.2		ug/L	P403819	
		Calcium	2.60		mg/L	P403819	
		Iron	720		ug/L	P403819	
		Magnesium	1.76		mg/L	P403819	
		Manganese	48.9		ug/L	P403819	
		Potassium	1.2	I	mg/L	P403819	
		Sodium	2.2		mg/L	P403819	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P403819	
		Aluminum	184		ug/L	P403819	
		Antimony	0.050	U	ug/L	P403819	
		Arsenic	0.42		ug/L	P403819	
		Beryllium	0.079		ug/L	P403819	
		Boron**	15.5		ug/L	P403819	
		Cadmium	0.020	U	ug/L	P403819	
		Chromium	0.40	U	ug/L	P403819	
		Copper	0.40	U	ug/L	P403819	
		Lead	0.30	I	ug/L	P403819	
		Nickel	0.66	I	ug/L	P403819	
		Selenium	0.20	U	ug/L	P403819	
		Silver	0.010	U	ug/L	P403819	
		Thallium	0.10	U	ug/L	P403819	
	SM 2340B	Hardness	13.7		mg/L	P403819	

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: FB

Collection Date/Time: 09/13/2021 10:15

Field ID: FB_09132021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276041	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P403866	
		Sulfate	0.20	U	mg SO4/L	P403867	
		Color (true)	2.5	UQ	PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	15	U	mg/L	P404172	
	SM 2540 D-2011	TSS	2	U	mg/L	P404000	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2276042	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403914	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P403961	
2276043	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P403746	
2276063	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P403819	
		Calcium	0.075	U	mg/L	P403819	
		Iron	30	U	ug/L	P403819	
		Magnesium	0.040	U	mg/L	P403819	
		Manganese	1.0	U	ug/L	P403819	
		Potassium	0.30	U	mg/L	P403819	
		Sodium	0.50	U	mg/L	P403819	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P403819	
		Aluminum	5.0	U	ug/L	P403819	
		Antimony	0.050	U	ug/L	P403819	
		Arsenic	0.050	U	ug/L	P403819	
		Beryllium	0.010	U	ug/L	P403819	
		Boron**	2.0	U	ug/L	P403819	
		Cadmium	0.020	U	ug/L	P403819	
		Chromium	0.40	U	ug/L	P403819	
		Copper	0.40	U	ug/L	P403819	
		Lead	0.20	U	ug/L	P403819	
		Nickel	0.50	U	ug/L	P403819	
		Selenium	0.20	U	ug/L	P403819	
		Silver	0.010	U	ug/L	P403819	
		Thallium	0.10	U	ug/L	P403819	
		Hardness	0.35	U	mg/L	P403819	
	SM 2340B	Hardness	0.35	U	mg/L	P403819	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

SM 2120 B-2011: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Manning Creek upstream of Manning Creek Rd Collection Date/Time: 09/13/2021 12:00

Field ID: G4NW0435

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276031	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P403785	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P403866	
		Sulfate	0.56		mg SO4/L	P403867	
	SM 2120 B-2011	Color (true)	30		PCU	P403737	
	SM 2320 B-2011	Total Alkalinity	2.9		mg CaCO3/L	P403859	
	SM 2540 C-2011	TDS	32		mg/L	P404174	
	SM 2540 D-2011	TSS	4	I	mg/L	P404002	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P403861	
2276034	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P403922	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P403932	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.4		mg N/L	P403914	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P403840	
	SM 5310 B-2011	Organic Carbon	2.9		mg C/L	P404048	
2276037	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P403746	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 9031

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NW-DIST-2021-09-15-02	TLH-2021-09-15-09	2276038	
NW-DIST-2021-09-15-02	TLH-2021-09-15-09	2276040	

NCR Type: SHIPPING/RECEIVING NCR Category: Samples arrived late

Observation: Samples arrived late, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.
Customer contacted by phone.
Biology and Chemistry supervisors were notified by email.

Authorized by/Date: Joshua Ayres 9/22/2021

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P403785

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403819

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: P403819

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: P403866

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403867

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403922

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403932

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404038

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403840

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403746

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

Reference Method: SM 2120 B-2011
Batch ID: P403737

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P403859

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

Reference Method: SM 2540 C-2011
Batch ID: P404172

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P404174

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404000

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404002

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P403961

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

Reference Method: SM 5310 B-2011
Batch ID: P404048

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: P403819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	103		P	85 - 115
Iron	103		P	85 - 115
Magnesium	105		P	85 - 115
Manganese	100		P	85 - 115
Potassium	98.8		P	85 - 115
Sodium	101		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	96.2		P	85 - 115
Beryllium	97.6		P	85 - 115
Boron	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	98.8		P	85 - 115
Copper	94.6		P	85 - 115
Lead	98.6		P	85 - 115
Nickel	94.0		P	85 - 115
Selenium	97.2		P	85 - 115
Silver	102		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403866

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403867

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403922

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.1		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404038

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403840

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403746

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

Reference Method: SM 2120 B-2011
Batch ID: P403737

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

Reference Method: SM 2320 B-2011
Batch ID: P403859

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

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

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

Reference Method: SM 5310 B-2011
Batch ID: P403961

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P404048

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276260	Barium	102	102	P/P	80 - 120
2276260	Calcium	107	107	P/P	80 - 120
2276260	Iron	107	107	P/P	80 - 120
2276260	Magnesium	109	109	P/P	80 - 120
2276260	Manganese	101	101	P/P	80 - 120
2276260	Potassium	104	104	P/P	80 - 120
2276260	Sodium	99.6		P	80 - 120
2276260	Zinc	104	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276260	Aluminum	101	99.6	P/P	80 - 120
2276260	Antimony	105	103	P/P	80 - 120
2276260	Arsenic	97.3	94.6	P/P	80 - 120
2276260	Beryllium	101	97.2	P/P	80 - 120
2276260	Boron	102	103	P/P	80 - 120
2276260	Cadmium	103	103	P/P	80 - 120
2276260	Chromium	98.8	96.4	P/P	80 - 120
2276260	Copper	95.9	93.8	P/P	80 - 120
2276260	Lead	100	99.1	P/P	80 - 120
2276260	Nickel	94.0	92.2	P/P	80 - 120
2276260	Selenium	95.0	94.5	P/P	80 - 120
2276260	Silver	100	102	P/P	80 - 120
2276260	Thallium	104	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275748	Chloride	97.7		P	90 - 110
2276023	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275748	Sulfate	98.1		P	90 - 110
2276023	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276039	Ammonia-N	98.2	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276032	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275892	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275935	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276341	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276025	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276037	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P403861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276072	Fluoride	99.1	98.6	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2276269	Organic Carbon	96.2	97.3	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P404048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275817	Organic Carbon	98.8	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P403785

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276029	Turbidity	2.13	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403819

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276260	Barium	0.0863	Spike	P	0 - 20
2276260	Calcium	0.233	Spike	P	0 - 20
2276260	Iron	0.0312	Spike	P	0 - 20
2276260	Magnesium	0.131	Spike	P	0 - 20
2276260	Manganese	0.307	Spike	P	0 - 20
2276260	Potassium	0.0697	Spike	P	0 - 20
2276260	Sodium	0.143	Spike	P	0 - 20
2276260	Zinc	0.191	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403819

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276260	Aluminum	1.45	Spike	P	0 - 20
2276260	Antimony	1.47	Spike	P	0 - 20
2276260	Arsenic	2.72	Spike	P	0 - 20
2276260	Beryllium	3.65	Spike	P	0 - 20
2276260	Boron	1.15	Spike	P	0 - 20
2276260	Cadmium	0.152	Spike	P	0 - 20
2276260	Chromium	2.41	Spike	P	0 - 20
2276260	Copper	2.17	Spike	P	0 - 20
2276260	Lead	0.993	Spike	P	0 - 20
2276260	Nickel	1.92	Spike	P	0 - 20
2276260	Selenium	0.562	Spike	P	0 - 20
2276260	Silver	1.38	Spike	P	0 - 20
2276260	Thallium	1.07	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403866

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275748	Chloride	0.617	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403867

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275748	Sulfate	1.00	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276039	Ammonia-N	0.418	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276032	Kjeldahl Nitrogen	1.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275892	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275935	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276341	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276025	Total-P	1.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P403746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276037	O-Phosphate-P	1.76	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P403737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276024	Color (true)	0.531	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
 Batch ID: P403859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276072	Total Alkalinity	1.27	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
 Batch ID: P404172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275509	TDS	7.41	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P404174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275749	TDS	8.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P403861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276072	Fluoride	0.469	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P403961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2276269	Organic Carbon	0.594	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
 Batch ID: P404048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275817	Organic Carbon	0.208	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107789

Included Lab Sample IDs: 2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	99.6	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A107794

Included Lab Sample IDs: 2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107798

Included Lab Sample IDs: 2276027, 2276028, 2276035, 2276036, 2276037, 2276040, 2276043

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.4	P/P	90 - 110
O-Phosphate-P	99.4	98.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107812

Included Lab Sample IDs: 2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041

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

Reference Method: SM 2320 B-2011

Run ID: A107847

Included Lab Sample IDs: 2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041

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

Reference Method: SM 4500 F-C-2011

Run ID: A107847

Included Lab Sample IDs: 2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107874

Included Lab Sample IDs: 2276060, 2276061, 2276062, 2276063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	96.5	97.0	P/P	95 - 105
Barium	97.0	96.5	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Calcium	99.9	101	P/P	95 - 105
Iron	100	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107874

Included Lab Sample IDs: 2276060, 2276061, 2276062, 2276063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.3	100	P/P	95 - 105
Magnesium	101	101	P/P	90 - 110
Magnesium	99.7	101	P/P	95 - 105
Manganese	102	102	P/P	95 - 105
Manganese	102	101	P/P	90 - 110
Potassium	97.6	98.0	P/P	95 - 105
Potassium	98.0	97.9	P/P	90 - 110
Sodium	98.7	99.0	P/P	95 - 105
Sodium	99.0	98.9	P/P	90 - 110
Zinc	101	103	P/P	95 - 105
Zinc	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107882

Included Lab Sample IDs: 2276025, 2276026, 2276032, 2276034, 2276039, 2276042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107885

Included Lab Sample IDs: 2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.6	96.6	P/P	90 - 110
Ammonia-N	98.6	98.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107890

Included Lab Sample IDs: 2276060, 2276061, 2276062, 2276063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	99.2	P/P	90 - 110
Aluminum	99.2	101	P/P	90 - 110
Antimony	102	103	P/P	90 - 110
Antimony	103	103	P/P	90 - 110
Arsenic	96.1	95.7	P/P	90 - 110
Arsenic	96.7	96.1	P/P	90 - 110
Beryllium	93.8	95.2	P/P	90 - 110
Beryllium	95.2	95.6	P/P	90 - 110
Boron	101	102	P/P	90 - 110
Boron	104	101	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	96.4	96.3	P/P	90 - 110
Chromium	99.0	96.4	P/P	90 - 110
Copper	91.4	92.4	P/P	90 - 110
Copper	95.2	91.4	P/P	90 - 110
Lead	96.4	97.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107890

Included Lab Sample IDs: 2276060, 2276061, 2276062, 2276063

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	97.4	98.1	P/P	90 - 110
Nickel	90.5	91.4	P/P	90 - 110
Nickel	95.4	90.5	P/P	90 - 110
Selenium	98.5	99.1	P/P	90 - 110
Selenium	99.6	98.5	P/P	90 - 110
Silver	95.6	95.9	P/P	90 - 110
Silver	95.9	95.9	P/P	90 - 110
Thallium	100	102	P/P	90 - 110
Thallium	102	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107898

Included Lab Sample IDs: 2276039, 2276042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107901

Included Lab Sample IDs: 2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107906

Included Lab Sample IDs: 2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	99.1	P/P	90 - 110
Kjeldahl Nitrogen	99.1	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107927

Included Lab Sample IDs: 2276033

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

Reference Method: SM 5310 B-2011

Run ID: A107931

Included Lab Sample IDs: 2276025, 2276026, 2276032, 2276033, 2276034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	99.6	P/P	90 - 110
Organic Carbon	99.6	99.2	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.13	
EPA 200.7 Rev. 4.4	Barium	101	102	102			0.0863
	Calcium	103	107	107			0.233
	Iron	103	107	107			0.0312
	Magnesium	105	109	109			0.131
	Manganese	100	101	101			0.307
	Potassium	98.8	104	104			0.0697
	Sodium	101	99.6				0.143
	Zinc	103	104	104			0.191
EPA 200.8 Rev. 5.4	Aluminum	101	101	99.6			1.45
	Antimony	105	105	103			1.47
	Arsenic	96.2	97.3	94.6			2.72
	Beryllium	97.6	101	97.2			3.65
	Boron	103	102	103			1.15
	Cadmium	103	103	103			0.152
	Chromium	98.8	98.8	96.4			2.41
	Copper	94.6	95.9	93.8			2.17
	Lead	98.6	100	99.1			0.993
	Nickel	94.0	94.0	92.2			1.92
	Selenium	97.2	95.0	94.5			0.562
	Silver	102	100	102			1.38
	Thallium	103	104	105			1.07
EPA 300.0 Rev. 2.1	Chloride	98.0	97.7	98.8		0.617	
	Sulfate	96.9	98.1	99.0		1.00	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	98.2	97.6			0.418
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.1	101	103			1.18
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	104	104			0.0
	NO ₂ NO ₃ -N	104	104	104			0.0
	NO ₂ NO ₃ -N	103	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	104	104	105			1.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	101	103			1.76
SM 2120 B-2011	Color (true)	100				0.531	
SM 2320 B-2011	Total Alkalinity	102				1.27	
SM 2540 C-2011	TDS					7.41	
	TDS					8.26	
SM 4500 F-C-2011	Fluoride	100	99.1	98.6			0.469
SM 5310 B-2011	Organic Carbon	98.0	96.2	97.3			0.594
	Organic Carbon	97.6	98.8	99.2			0.208

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2276060, 2276061, 2276062, 2276063
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2276060, 2276061, 2276062, 2276063
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2276027, 2276028, 2276035, 2276036, 2276037, 2276040, 2276043
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2276060, 2276061, 2276062, 2276063
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2276025, 2276026, 2276032, 2276033, 2276034, 2276039, 2276042

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	09/15/2021			09/15/2021 10:38	Sarah A Nixon	2276029
	09/15/2021			09/15/2021 10:40	Sarah A Nixon	2276030
	09/15/2021			09/15/2021 10:41	Sarah A Nixon	2276024
	09/15/2021			09/15/2021 10:43	Sarah A Nixon	2276031
	09/15/2021			09/15/2021 10:45	Sarah A Nixon	2276038
	09/15/2021			09/15/2021 10:47	Sarah A Nixon	2276023
	09/15/2021			09/15/2021 10:48	Sarah A Nixon	2276041
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 14:06	Josef B Mick	2276063
EPA 200.7 Rev. 4.4	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 14:56	Josef B Mick	2276060
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 15:33	Josef B Mick	2276061
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/17/2021 15:39	Josef B Mick	2276062
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/20/2021 15:19	Alexander Thompson	2276063
EPA 200.8 Rev. 5.4	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/20/2021 17:15	Alexander Thompson	2276060
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/20/2021 17:25	Alexander Thompson	2276061
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/20/2021 17:34	Alexander Thompson	2276062
	09/15/2021	09/16/2021 13:30	Elliott D. Healy	09/16/2021 14:26	Roberta Tatti	2276023
EPA 300.0 Rev. 2.1	09/15/2021			09/16/2021 17:28	Roberta Tatti	2276024
	09/15/2021			09/16/2021 17:40	Roberta Tatti	2276029
	09/15/2021			09/16/2021 17:52	Roberta Tatti	2276030
	09/15/2021			09/16/2021 18:04	Roberta Tatti	2276031
	09/15/2021			09/16/2021 18:17	Roberta Tatti	2276038
	09/15/2021			09/16/2021 18:29	Roberta Tatti	2276041
	09/15/2021			09/20/2021 12:34	Ping Hua	2276039
	09/15/2021			09/20/2021 12:41	Ping Hua	2276025
EPA 350.1 Rev. 2.0	09/15/2021			09/20/2021 12:43	Ping Hua	2276032
	09/15/2021			09/20/2021 12:45	Ping Hua	2276033
	09/15/2021			09/20/2021 12:46	Ping Hua	2276034
	09/15/2021			09/20/2021 12:49	Ping Hua	2276042
	09/15/2021			09/20/2021 13:25	Ping Hua	2276026
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:55	Alexandra J Mattheus	2276025
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:57	Alexandra J Mattheus	2276026
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 11:58	Alexandra J Mattheus	2276032
EPA 351.2 Rev. 2.0	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 12:03	Alexandra J Mattheus	2276033
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 12:08	Alexandra J Mattheus	2276034
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 12:10	Alexandra J Mattheus	2276039
	09/15/2021	09/20/2021 13:20	Benjamin T. Nordmann	09/21/2021 12:12	Alexandra J Mattheus	2276042
	09/15/2021			09/20/2021 09:54	Beverly Y. Sanders	2276025
	09/15/2021			09/20/2021 10:16	Beverly Y. Sanders	2276039
EPA 353.2 Rev. 2.0	09/15/2021			09/20/2021 10:17	Beverly Y. Sanders	2276042
	09/15/2021			09/20/2021 11:21	Beverly Y. Sanders	2276026

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	09/15/2021			09/20/2021 11:22	Beverly Y. Sanders	2276032
	09/15/2021			09/20/2021 11:27	Beverly Y. Sanders	2276034
	09/15/2021			09/22/2021 09:01	Beverly Y. Sanders	2276033
EPA 365.1 Rev. 2.0	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:21	Virginia P. Brown	2276042
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:22	Virginia P. Brown	2276025
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:24	Virginia P. Brown	2276026
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:25	Virginia P. Brown	2276032
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:26	Virginia P. Brown	2276033
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:27	Virginia P. Brown	2276034
	09/15/2021	09/16/2021 15:28	Simonne.V. Calhoun	09/20/2021 16:35	Virginia P. Brown	2276039
EPA 365.1 Rev. 2.0 dissolved	09/15/2021			09/15/2021 10:55	James L Waggeberby	2276037
	09/15/2021			09/15/2021 10:58	James L Waggeberby	2276027
	09/15/2021			09/15/2021 10:59	James L Waggeberby	2276028
	09/15/2021			09/15/2021 11:00	James L Waggeberby	2276035, 2276036
	09/15/2021			09/15/2021 11:01	James L Waggeberby	2276040
	09/15/2021			09/15/2021 11:06	James L Waggeberby	2276043
SM 2120 B-2011	09/15/2021			09/15/2021 10:54	Madeline Gruver	2276029
	09/15/2021			09/15/2021 10:55	Madeline Gruver	2276030
	09/15/2021			09/15/2021 10:56	Madeline Gruver	2276024
	09/15/2021			09/15/2021 10:57	Madeline Gruver	2276023, 2276031
	09/15/2021			09/15/2021 10:58	Madeline Gruver	2276038, 2276041
SM 2320 B-2011	09/15/2021			09/16/2021 17:31	Dale L. Simmons	2276023
	09/15/2021			09/16/2021 17:40	Dale L. Simmons	2276024
	09/15/2021			09/16/2021 17:50	Dale L. Simmons	2276029
	09/15/2021			09/16/2021 17:59	Dale L. Simmons	2276030
	09/15/2021			09/16/2021 18:08	Dale L. Simmons	2276031
	09/15/2021			09/16/2021 18:19	Dale L. Simmons	2276038
	09/15/2021			09/16/2021 18:28	Dale L. Simmons	2276041
	09/15/2021			09/17/2021 14:06	Josef B Mick	2276063
SM 2340B	09/15/2021			09/17/2021 14:56	Josef B Mick	2276060
	09/15/2021			09/17/2021 15:33	Josef B Mick	2276061
	09/15/2021			09/17/2021 15:39	Josef B Mick	2276062
	09/15/2021			09/16/2021 15:25	Yijie Li	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 2540 C-2011	09/15/2021			09/16/2021 15:25	Yijie Li	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 2540 D-2011	09/15/2021			09/16/2021 15:25	Yijie Li	2276023, 2276024, 2276029, 2276030, 2276031, 2276038, 2276041
SM 4500 F-C-2011	09/15/2021			09/16/2021 17:31	Dale L. Simmons	2276023
	09/15/2021			09/16/2021 17:40	Dale L. Simmons	2276024
	09/15/2021			09/16/2021 17:50	Dale L. Simmons	2276029
	09/15/2021			09/16/2021 17:59	Dale L. Simmons	2276030

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	09/15/2021			09/16/2021 18:08	Dale L. Simmons	2276031
	09/15/2021			09/16/2021 18:19	Dale L. Simmons	2276038
	09/15/2021			09/16/2021 18:28	Dale L. Simmons	2276041
SM 5310 B-2011	09/15/2021			09/18/2021 08:17	Touraj Touran	2276025
	09/15/2021			09/18/2021 08:30	Touraj Touran	2276026
	09/15/2021			09/18/2021 08:42	Touraj Touran	2276032
	09/15/2021			09/18/2021 08:55	Touraj Touran	2276033
	09/15/2021			09/18/2021 09:35	Touraj Touran	2276034
	09/15/2021			09/20/2021 18:53	Madeline Gruver	2276039
	09/15/2021			09/20/2021 19:05	Madeline Gruver	2276042