Chemical Analysis Report

NW-DIST-2022-04-15-01

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

Event Description: **Eastern Lakes Run**
Request ID: **RQ-2022-04-11-31**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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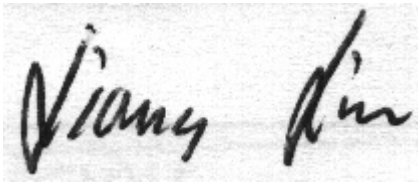
Date Certified: 06-MAY-2022 15:39



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: Kings Lake **Collection Date/Time: 04/14/2022 12:20**

Field ID: G4NW0537 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2319685	DEP SOP: NU-094-1	Color (true)**	10		PCU	P412436	
	EPA 180.1 Rev. 2.0	Turbidity	0.60	I	NTU	P412439	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P412952	
		Sulfate	0.88		mg SO4/L	P412955	
	SM 2320 B-2011	Total Alkalinity	1.3	I	mg CaCO3/L	P412807	
	SM 2540 C-2011	TDS	17	I	mg/L	P413061	
	SM 2540 D-2011	TSS	2	I	mg/L	P412988	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P412810	
2319686	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P412626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P412837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P412622	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P412670	
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P412974	
2319695	EPA 200.7 Rev. 4.4	Calcium	0.93		mg/L	P412515	
		Iron	30	U	ug/L	P412515	
		Magnesium	0.54		mg/L	P412515	
		Potassium	0.30	U	mg/L	P412515	
		Sodium	2.2		mg/L	P412515	
		Strontium	3.9	I	ug/L	P412515	
		Tin	3.0	U	ug/L	P412515	
		Titanium	0.75	U	ug/L	P412515	
		Vanadium	2.0	U	ug/L	P412515	
		Zinc	5.0	U	ug/L	P412515	
	EPA 200.8 Rev. 5.4	Aluminum	14	I	ug/L	P412515	
		Antimony	0.052	I	ug/L	P412515	
		Arsenic	0.71		ug/L	P412515	
		Barium	3.51		ug/L	P412515	
		Beryllium	0.010	U	ug/L	P412515	
		Boron**	11.5		ug/L	P412515	
		Cadmium	0.020	U	ug/L	P412515	
		Chromium	0.40	U	ug/L	P412515	
		Cobalt	0.020	U	ug/L	P412515	
		Copper	0.48	I	ug/L	P412515	
		Lead	0.20	U	ug/L	P412515	
		Manganese	3.54		ug/L	P412515	
		Molybdenum	0.15	U	ug/L	P412515	
		Nickel	0.50	U	ug/L	P412515	
		Selenium	0.20	U	ug/L	P412515	
		Silver	0.010	U	ug/L	P412515	
		Thallium	0.10	U	ug/L	P412515	
	SM 2340 B-2011	Hardness	4.5		mg/L	P412515	

Field ID: G4NW0537 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Holly Lake **Collection Date/Time: 04/14/2022 11:40**

Field ID: G4NW0517 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2319681	DEP SOP: NU-094-1	Color (true)**	15		PCU	P412436	
	EPA 180.1 Rev. 2.0	Turbidity	0.60	I	NTU	P412439	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P412952	
		Sulfate	0.62		mg SO4/L	P412955	
	SM 2320 B-2011	Total Alkalinity	1.8	I	mg CaCO3/L	P412807	
	SM 2540 C-2011	TDS	18	I	mg/L	P413061	
	SM 2540 D-2011	TSS	2	U	mg/L	P412988	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P412810	
2319683	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P412626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P412837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P412621	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P412670	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P412974	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Anderson Mill Creek **Collection Date/Time: 04/14/2022 13:25**

Field ID: G3NW0224 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2319679	DEP SOP: NU-094-1	Color (true)**	60		PCU	P412436	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P412439	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P412952	
		Sulfate	0.47	I	mg SO4/L	P412955	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P412806	
	SM 2540 C-2011	TDS	23	I	mg/L	P413061	
	SM 2540 D-2011	TSS	2	I	mg/L	P412988	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P412809	
2319680	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P412626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P412837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P412789	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P412668	
	SM 5310 B-2011	Organic Carbon	5.6		mg C/L	P412974	
2319694	EPA 200.7 Rev. 4.4	Calcium	0.65		mg/L	P412515	
		Iron	350		ug/L	P412515	
		Magnesium	0.50		mg/L	P412515	
		Potassium	0.30	U	mg/L	P412515	
		Sodium	1.9	I	mg/L	P412515	
		Strontium	4.9	I	ug/L	P412515	
		Tin	3.0	U	ug/L	P412515	
		Titanium	3.1		ug/L	P412515	
		Vanadium	2.0	U	ug/L	P412515	
		Zinc	5.0	U	ug/L	P412515	
	EPA 200.8 Rev. 5.4	Aluminum	181		ug/L	P412515	
		Antimony	0.050	U	ug/L	P412515	
		Arsenic	0.21		ug/L	P412515	
		Barium	12.4		ug/L	P412515	
		Beryllium	0.032	I	ug/L	P412515	
		Boron**	6.9	I	ug/L	P412515	
		Cadmium	0.020	U	ug/L	P412515	
		Chromium	0.40	U	ug/L	P412515	
		Cobalt	0.240		ug/L	P412515	
		Copper	0.40	U	ug/L	P412515	
		Lead	0.20	U	ug/L	P412515	
		Manganese	16.6		ug/L	P412515	
		Molybdenum	0.15	U	ug/L	P412515	
		Nickel	0.50	U	ug/L	P412515	
		Selenium	0.20	U	ug/L	P412515	
		Silver	0.010	U	ug/L	P412515	
		Thallium	0.10	U	ug/L	P412515	
	SM 2340 B-2011	Hardness	3.7		mg/L	P412515	

Field ID: G3NW0224 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Cassidy Lake Center **Collection Date/Time: 04/14/2022 14:15**

Field ID: G3NW0183 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2319682	DEP SOP: NU-094-1	Color (true)**	2.7	I	PCU	P412436	
	EPA 180.1 Rev. 2.0	Turbidity	0.95	I	NTU	P412439	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P412952	
		Sulfate	0.79		mg SO4/L	P412955	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P412807	
	SM 2540 C-2011	TDS	19	I	mg/L	P413061	
	SM 2540 D-2011	TSS	5	U	mg/L	P412988	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P412810	
2319684	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P412626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P412927	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P412621	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P412670	
	SM 5310 B-2011	Organic Carbon	3.5		mg C/L	P412974	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated because of sample matrix interference.

Sample Location: FB **Collection Date/Time: 04/14/2022 12:25**

Field ID: FB_04142022 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2319687	DEP SOP: NU-094-1	Color (true)**	2.5	U	PCU	P412436	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P412439	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P412952	
		Sulfate	0.20	U	mg SO4/L	P412955	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P412807	
	SM 2540 C-2011	TDS	15	U	mg/L	P413060	
	SM 2540 D-2011	TSS	2	U	mg/L	P412987	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P412810	
2319688	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P412626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P412837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P412622	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P412670	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P412974	
2319696	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P412515	
		Iron	30	U	ug/L	P412515	
		Magnesium	0.040	U	mg/L	P412515	
		Potassium	0.30	U	mg/L	P412515	
		Sodium	0.50	U	mg/L	P412515	
		Strontium	2.0	U	ug/L	P412515	
		Tin	3.0	U	ug/L	P412515	
		Titanium	0.75	U	ug/L	P412515	
		Vanadium	2.0	U	ug/L	P412515	
		Zinc	5.0	U	ug/L	P412515	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P412515	
		Antimony	0.050	U	ug/L	P412515	
		Arsenic	0.050	U	ug/L	P412515	
		Barium	0.20	U	ug/L	P412515	
		Beryllium	0.010	U	ug/L	P412515	
		Boron**	2.0	U	ug/L	P412515	
		Cadmium	0.020	U	ug/L	P412515	
		Chromium	0.40	U	ug/L	P412515	
		Cobalt	0.020	U	ug/L	P412515	
		Copper	0.40	U	ug/L	P412515	
		Lead	0.20	U	ug/L	P412515	
		Manganese	0.10	U	ug/L	P412515	
		Molybdenum	0.15	U	ug/L	P412515	
		Nickel	0.50	U	ug/L	P412515	
		Selenium	0.20	U	ug/L	P412515	
		Silver	0.010	U	ug/L	P412515	
		Thallium	0.10	U	ug/L	P412515	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P412515	

Field ID: FB_04142022 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P412436

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412439

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412515

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412515

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	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: P412952

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: P412955

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412626

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412837

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412927

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412621

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412622

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412789

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412668

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412670

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P412806

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

Reference Method: SM 2320 B-2011
Batch ID: P412807

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

Reference Method: SM 2540 C-2011
Batch ID: P413060

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P413061

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P412987

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P412988

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P412809

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P412810

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P412974

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P412436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.3		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Strontium	106		P	85 - 115
Tin	97.8		P	85 - 115
Titanium	97.4		P	85 - 115
Vanadium	93.4		P	85 - 115
Zinc	99.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.8		P	85 - 115
Antimony	99.1		P	85 - 115
Arsenic	99.9		P	85 - 115
Barium	103		P	85 - 115
Beryllium	95.7		P	85 - 115
Boron	100		P	85 - 115
Cadmium	96.8		P	85 - 115
Chromium	98.4		P	85 - 115
Cobalt	101		P	85 - 115
Copper	97.4		P	85 - 115
Lead	99.9		P	85 - 115
Manganese	98.4		P	85 - 115
Molybdenum	99.2		P	85 - 115
Nickel	98.5		P	85 - 115
Selenium	99.2		P	85 - 115
Silver	103		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412952

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412626

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: P412837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412927

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412789

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412668

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412670

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P412806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P412807

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.6		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P412809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	93 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P412810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P412974

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319463	Iron	104		P	80 - 120
2319463	Magnesium	107		P	80 - 120
2319463	Sodium	96.4		P	80 - 120
2319463	Strontium	104		P	80 - 120
2319463	Tin	96.7		P	80 - 120
2319463	Titanium	95.3		P	80 - 120
2319463	Vanadium	94.2		P	80 - 120
2319463	Zinc	98.2		P	80 - 120
2319694	Calcium	106	109	P/P	80 - 120
2319694	Iron	107	109	P/P	80 - 120
2319694	Magnesium	109	112	P/P	80 - 120
2319694	Potassium	108	112	P/P	80 - 120
2319694	Sodium	108	110	P/P	80 - 120
2319694	Strontium	112	115	P/P	80 - 120
2319694	Tin	99.3	102	P/P	80 - 120
2319694	Titanium	96.3	98.6	P/P	80 - 120
2319694	Vanadium	95.1	97.7	P/P	80 - 120
2319694	Zinc	102	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319463	Aluminum	99.0		P	75 - 125
2319463	Antimony	104		P	75 - 125
2319463	Arsenic	102		P	75 - 125
2319463	Barium	106		P	75 - 125
2319463	Beryllium	97.4		P	75 - 125
2319463	Boron	103		P	75 - 125
2319463	Cadmium	101		P	75 - 125
2319463	Chromium	103		P	75 - 125
2319463	Cobalt	102		P	75 - 125
2319463	Copper	95.6		P	75 - 125
2319463	Lead	103		P	75 - 125
2319463	Manganese	103		P	75 - 125
2319463	Molybdenum	106		P	75 - 125
2319463	Nickel	98.4		P	75 - 125
2319463	Selenium	101		P	75 - 125
2319463	Silver	102		P	75 - 125
2319463	Thallium	109		P	75 - 125
2319694	Aluminum	97.2	105	P/P	80 - 120
2319694	Antimony	98.0	102	P/P	80 - 120
2319694	Arsenic	95.1	100	P/P	80 - 120
2319694	Barium	101	105	P/P	80 - 120
2319694	Beryllium	92.3	96.3	P/P	80 - 120
2319694	Boron	102	107	P/P	80 - 120
2319694	Cadmium	99.2	103	P/P	80 - 120
2319694	Chromium	97.1	102	P/P	80 - 120
2319694	Cobalt	95.0	100	P/P	80 - 120
2319694	Copper	93.0	97.5	P/P	80 - 120
2319694	Lead	98.6	104	P/P	80 - 120
2319694	Manganese	97.0	103	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319694	Molybdenum	96.9	102	P/P	80 - 120
2319694	Nickel	93.8	98.7	P/P	80 - 120
2319694	Selenium	94.2	97.8	P/P	80 - 120
2319694	Silver	102	104	P/P	80 - 120
2319694	Thallium	99.7	107	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319726	Chloride	96.9		P	90 - 110
2319765	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319726	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319680	Ammonia-N	95.4	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2322111	Kjeldahl Nitrogen	101	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319574	NO2NO3-N	96.2	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319710	NO2NO3-N	97.0	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319680	NO2NO3-N	99.8	99.8	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412668

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319575	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319713	Total-P	103	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P412809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319651	Fluoride	98.4	99.2	P/P	92 - 107

Reference Method: SM 4500-F- C-2011
Batch ID: P412810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319704	Fluoride	100	99.4	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P412974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2319599	Organic Carbon	94.0	94.8	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P412436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319702	Color (true)	0.283	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P412439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319572	Turbidity	12.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P412515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319694	Calcium	1.77	Spike	P	0 - 20
2319694	Iron	2.54	Spike	P	0 - 20
2319694	Magnesium	2.31	Spike	P	0 - 20
2319694	Potassium	3.17	Spike	P	0 - 20
2319694	Sodium	1.72	Spike	P	0 - 20
2319694	Strontium	2.48	Spike	P	0 - 20
2319694	Tin	2.58	Spike	P	0 - 20
2319694	Titanium	2.12	Spike	P	0 - 20
2319694	Vanadium	2.76	Spike	P	0 - 20
2319694	Zinc	2.67	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319694	Aluminum	6.29	Spike	P	0 - 20
2319694	Antimony	4.16	Spike	P	0 - 20
2319694	Arsenic	5.21	Spike	P	0 - 20
2319694	Barium	4.08	Spike	P	0 - 20
2319694	Beryllium	3.90	Spike	P	0 - 20
2319694	Boron	4.92	Spike	P	0 - 20
2319694	Cadmium	3.33	Spike	P	0 - 20
2319694	Chromium	4.73	Spike	P	0 - 20
2319694	Cobalt	5.13	Spike	P	0 - 20
2319694	Copper	4.77	Spike	P	0 - 20
2319694	Lead	5.22	Spike	P	0 - 20
2319694	Manganese	4.16	Spike	P	0 - 20
2319694	Molybdenum	4.90	Spike	P	0 - 20
2319694	Nickel	5.04	Spike	P	0 - 20
2319694	Selenium	3.77	Spike	P	0 - 20
2319694	Silver	1.72	Spike	P	0 - 20
2319694	Thallium	6.57	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319726	Chloride	0.748	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P412955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319726	Sulfate	1.37	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319680	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319566	Kjeldahl Nitrogen	10.8	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2322111	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319574	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319710	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319680	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319575	Total-P	0.791	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319713	Total-P	0.786	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P412806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319651	Total Alkalinity	2.21	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P412807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319704	Total Alkalinity	0.146	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P413060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319521	TDS	2.52	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P413061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319726	TDS	4.49	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P412809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319651	Fluoride	0.476	Spike	P	0 - 2.1

Reference Method: SM 4500-F- C-2011
Batch ID: P412810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319704	Fluoride	0.476	Spike	P	0 - 2.1

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P412974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2319599	Organic Carbon	0.494	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A111505
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A111506
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A111572
Included Lab Sample IDs: 2319683, 2319684, 2319686, 2319688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A111574
Included Lab Sample IDs: 2319680, 2319683, 2319684, 2319686, 2319688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	97.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A111585
Included Lab Sample IDs: 2319694, 2319695, 2319696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.7	101	P/P	90 - 110
Aluminum	99.3	99.4	P/P	90 - 110
Aluminum	99.4	97.7	P/P	90 - 110
Antimony	100	99.6	P/P	90 - 110
Antimony	100	100	P/P	90 - 110
Antimony	99.5	100	P/P	90 - 110
Arsenic	102	97.7	P/P	90 - 110
Arsenic	97.5	101	P/P	90 - 110
Arsenic	97.7	97.5	P/P	90 - 110
Barium	98.6	100	P/P	90 - 110
Barium	99.2	99.5	P/P	90 - 110
Barium	99.5	98.6	P/P	90 - 110
Beryllium	94.8	98.8	P/P	90 - 110
Beryllium	96.8	96.9	P/P	90 - 110
Beryllium	96.9	94.8	P/P	90 - 110
Boron	102	98.9	P/P	90 - 110
Boron	97.3	99.6	P/P	90 - 110
Boron	99.6	102	P/P	90 - 110
Cadmium	100	100	P/P	90 - 110
Cadmium	100	98.9	P/P	90 - 110
Cadmium	98.2	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A111585
Included Lab Sample IDs: 2319694, 2319695, 2319696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	97.8	99.9	P/P	90 - 110
Chromium	98.5	99.1	P/P	90 - 110
Chromium	99.9	98.5	P/P	90 - 110
Cobalt	102	98.5	P/P	90 - 110
Cobalt	97.3	102	P/P	90 - 110
Cobalt	98.5	97.3	P/P	90 - 110
Copper	100	96.6	P/P	90 - 110
Copper	95.2	101	P/P	90 - 110
Copper	96.6	95.2	P/P	90 - 110
Lead	97.3	98.2	P/P	90 - 110
Lead	97.6	97.3	P/P	90 - 110
Lead	98.3	97.6	P/P	90 - 110
Manganese	100	100	P/P	90 - 110
Manganese	97.9	99.4	P/P	90 - 110
Manganese	99.4	100	P/P	90 - 110
Molybdenum	97.7	98.8	P/P	90 - 110
Molybdenum	98.1	97.7	P/P	90 - 110
Molybdenum	100	98.1	P/P	90 - 110
Nickel	101	96.9	P/P	90 - 110
Nickel	95.6	102	P/P	90 - 110
Nickel	96.9	95.6	P/P	90 - 110
Selenium	100	99.6	P/P	90 - 110
Selenium	100	99.1	P/P	90 - 110
Selenium	99.1	100	P/P	90 - 110
Silver	104	104	P/P	90 - 110
Silver	104	104	P/P	90 - 110
Silver	104	103	P/P	90 - 110
Thallium	96.6	96.7	P/P	90 - 110
Thallium	96.7	96.7	P/P	90 - 110
Thallium	97.8	96.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A111649
Included Lab Sample IDs: 2319680

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A111656
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	97.6	P/P	90 - 110
Total Alkalinity	98.0	97.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A111656
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A111656
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A111687
Included Lab Sample IDs: 2319694, 2319695, 2319696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.8	99.0	P/P	90 - 110
Calcium	99.5	98.1	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	100	99.8	P/P	90 - 110
Magnesium	101	99.9	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Potassium	102	103	P/P	90 - 110
Sodium	100	102	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Strontium	106	107	P/P	90 - 110
Strontium	107	107	P/P	90 - 110
Tin	100	98.3	P/P	90 - 110
Tin	99.6	97.9	P/P	90 - 110
Titanium	99.6	98.3	P/P	90 - 110
Titanium	99.6	99.0	P/P	90 - 110
Vanadium	101	100	P/P	90 - 110
Vanadium	101	99.4	P/P	90 - 110
Zinc	102	101	P/P	90 - 110
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A111701
Included Lab Sample IDs: 2319680, 2319683, 2319684, 2319686, 2319688

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A111715
Included Lab Sample IDs: 2319679, 2319681, 2319682, 2319685, 2319687

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	99.9	101	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A111730
Included Lab Sample IDs: 2319680, 2319683, 2319684, 2319686, 2319688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	95.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A111730
Included Lab Sample IDs: 2319680, 2319683, 2319684, 2319686, 2319688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A111794
Included Lab Sample IDs: 2319684

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A111850
Included Lab Sample IDs: 2319680, 2319683, 2319686, 2319688

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110
Kjeldahl Nitrogen	104	97.7	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		
						LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	99.3					0.283	
EPA 180.1 Rev. 2.0	Turbidity	96.3					12.0	
EPA 200.7 Rev. 4.4	Calcium	103	106	109				1.77
	Iron	106	104	107	109			2.54
	Magnesium	108	107	109	112			2.31
	Potassium	101	108	112				3.17
	Sodium	105	96.4	108	110			1.72
	Strontium	106	104	112	115			2.48
	Tin	97.8	96.7	99.3	102			2.58
	Titanium	97.4	95.3	96.3	98.6			2.12
	Vanadium	93.4	94.2	95.1	97.7			2.76
	Zinc	99.1	98.2	102	104			2.67
EPA 200.8 Rev. 5.4	Aluminum	99.8	99.0	97.2	105			6.29
	Antimony	99.1	104	98.0	102			4.16
	Arsenic	99.9	102	95.1	100			5.21
	Barium	103	106	101	105			4.08
	Beryllium	95.7	97.4	92.3	96.3			3.90
	Boron	100	103	102	107			4.92
	Cadmium	96.8	101	99.2	103			3.33
	Chromium	98.4	103	97.1	102			4.73
	Cobalt	101	102	95.0	100			5.13
	Copper	97.4	95.6	93.0	97.5			4.77
	Lead	99.9	98.6	104	103			5.22
	Manganese	98.4	103	97.0	103			4.16
	Molybdenum	99.2	106	96.9	102			4.90
	Nickel	98.5	98.4	93.8	98.7			5.04
	Selenium	99.2	101	94.2	97.8			3.77
	Silver	103	102	102	104			1.72
	Thallium	102	109	99.7	107			6.57
EPA 300.0 Rev. 2.1	Chloride	98.4	96.9	96.6			0.748	
	Sulfate	97.0	96.8				1.37	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	95.4	95.4				0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.8						10.8
	Kjeldahl Nitrogen	100	101	99.4				1.15
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	96.2	96.2				0.0
	NO2NO3-N	98.0	97.0	97.0				0.0
	NO2NO3-N	101	99.8	99.8				0.0
EPA 365.1 Rev. 2.0	Total-P	103	103	102				0.791
	Total-P	102	103	102				0.786
SM 2320 B-2011	Total Alkalinity	96.6					2.21	
	Total Alkalinity	96.6					0.146	
SM 2540 C-2011	TDS						2.52	
	TDS						4.49	
SM 4500-F- C-2011	Fluoride	98.5	99.2	98.4				0.476
	Fluoride	99.6	100	99.4				0.476
SM 5310 B-2011	Organic Carbon	96.0	94.0	94.8				0.494

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2319679, 2319681, 2319682, 2319685, 2319687

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2319679, 2319681, 2319682, 2319685, 2319687
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2319694, 2319695, 2319696
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2319694, 2319695, 2319696
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2319679, 2319681, 2319682, 2319685, 2319687
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2319679, 2319681, 2319682, 2319685, 2319687
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2319680, 2319683, 2319684, 2319686, 2319688
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2319680, 2319683, 2319684, 2319686, 2319688
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2319680, 2319683, 2319684, 2319686, 2319688
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2319680, 2319683, 2319684, 2319686, 2319688
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2319679, 2319681, 2319682, 2319685, 2319687
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2319694, 2319695, 2319696
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2319679, 2319681, 2319682, 2319685, 2319687
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2319679, 2319681, 2319682, 2319685, 2319687
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2319679, 2319681, 2319682, 2319685, 2319687
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2319680, 2319683, 2319684, 2319686, 2319688

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	04/15/2022			04/15/2022 16:12	Anna M. Plaviak	2319679
	04/15/2022			04/15/2022 16:13	Anna M. Plaviak	2319681
	04/15/2022			04/15/2022 16:14	Anna M. Plaviak	2319682, 2319685
	04/15/2022			04/15/2022 16:15	Anna M. Plaviak	2319687
EPA 180.1 Rev. 2.0	04/15/2022			04/15/2022 13:56	Khloe J Berg	2319679
	04/15/2022			04/15/2022 13:58	Khloe J Berg	2319681
	04/15/2022			04/15/2022 14:01	Khloe J Berg	2319682
	04/15/2022			04/15/2022 14:02	Khloe J Berg	2319685
	04/15/2022			04/15/2022 14:04	Khloe J Berg	2319687
EPA 200.7 Rev. 4.4	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/25/2022 18:22	McKinley C Carter	2319696
	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/25/2022 21:38	McKinley C Carter	2319694
	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/25/2022 22:03	McKinley C Carter	2319695
EPA 200.8 Rev. 5.4	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/20/2022 14:32	Alexander Thompson	2319696
	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/20/2022 17:25	Alexander Thompson	2319694
	04/15/2022	04/19/2022 10:55	Megan Whitefoot	04/20/2022 18:42	Alexander Thompson	2319695
EPA 300.0 Rev. 2.1	04/15/2022			04/26/2022 15:23	Anna M. Plaviak	2319679
	04/15/2022			04/26/2022 15:35	Anna M. Plaviak	2319681
	04/15/2022			04/26/2022 15:47	Anna M. Plaviak	2319682
	04/15/2022			04/26/2022 15:59	Anna M. Plaviak	2319685
	04/15/2022			04/26/2022 16:11	Anna M. Plaviak	2319687
EPA 350.1 Rev. 2.0	04/15/2022			04/20/2022 10:50	Ping Hua	2319680
	04/15/2022			04/20/2022 10:54	Ping Hua	2319683
	04/15/2022			04/20/2022 10:56	Ping Hua	2319684
	04/15/2022			04/20/2022 10:57	Ping Hua	2319686
	04/15/2022			04/20/2022 11:05	Ping Hua	2319688
EPA 351.2 Rev. 2.0	04/15/2022	04/27/2022 17:18	Alexandra J Mattheus	04/28/2022 15:02	Alexandra J Mattheus	2319684
	04/15/2022	04/28/2022 09:58	Samantha L Bates	05/02/2022 12:18	Alexandra J Mattheus	2319680
	04/15/2022	04/28/2022 09:58	Samantha L Bates	05/02/2022 12:19	Alexandra J Mattheus	2319683
	04/15/2022	04/28/2022 09:58	Samantha L Bates	05/02/2022 12:21	Alexandra J Mattheus	2319686
	04/15/2022	04/28/2022 09:58	Samantha L Bates	05/02/2022 12:26	Alexandra J Mattheus	2319688
EPA 353.2 Rev. 2.0	04/15/2022			04/19/2022 16:24	Nathaniel J Jones	2319683
	04/15/2022			04/19/2022 16:25	Nathaniel J Jones	2319684
	04/15/2022			04/19/2022 16:38	Nathaniel J Jones	2319688
	04/15/2022			04/19/2022 16:40	Nathaniel J Jones	2319686
	04/15/2022			04/22/2022 15:00	Nathaniel J Jones	2319680
EPA 365.1 Rev. 2.0	04/15/2022	04/22/2022 16:40	Simonne.V. Calhoun	04/26/2022 15:56	James L Waggerby	2319680
	04/15/2022	04/22/2022 16:40	Simonne.V. Calhoun	04/26/2022 16:13	James L Waggerby	2319688
	04/15/2022	04/22/2022 16:40	Simonne.V. Calhoun	04/26/2022 16:15	James L Waggerby	2319683
	04/15/2022	04/22/2022 16:40	Simonne.V. Calhoun	04/26/2022 16:16	James L Waggerby	2319684
	04/15/2022	04/22/2022 16:40	Simonne.V. Calhoun	04/26/2022 16:17	James L Waggerby	2319686

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	04/15/2022			04/22/2022 01:18	Sarah A Nixon	2319679
	04/15/2022			04/22/2022 03:26	Sarah A Nixon	2319681
	04/15/2022			04/22/2022 03:35	Sarah A Nixon	2319682
	04/15/2022			04/22/2022 03:44	Sarah A Nixon	2319685
	04/15/2022			04/22/2022 03:53	Sarah A Nixon	2319687
SM 2340 B-2011	04/15/2022			04/25/2022 18:22	McKinley C Carter	2319696
	04/15/2022			04/25/2022 21:38	McKinley C Carter	2319694
	04/15/2022			04/25/2022 22:03	McKinley C Carter	2319695
SM 2540 C-2011	04/15/2022			04/20/2022 15:36	Yijie Li	2319679, 2319681, 2319682, 2319685, 2319687
SM 2540 D-2011	04/15/2022			04/20/2022 15:36	Yijie Li	2319679, 2319681, 2319682, 2319685, 2319687
SM 4500-F- C-2011	04/15/2022			04/22/2022 01:18	Sarah A Nixon	2319679
	04/15/2022			04/22/2022 03:26	Sarah A Nixon	2319681
	04/15/2022			04/22/2022 03:35	Sarah A Nixon	2319682
	04/15/2022			04/22/2022 03:44	Sarah A Nixon	2319685
	04/15/2022			04/22/2022 03:53	Sarah A Nixon	2319687
SM 5310 B-2011	04/15/2022			04/19/2022 21:36	Judith K. Clark	2319680
	04/15/2022			04/19/2022 22:18	Judith K. Clark	2319683
	04/15/2022			04/19/2022 22:31	Judith K. Clark	2319684
	04/15/2022			04/19/2022 22:44	Judith K. Clark	2319686
	04/15/2022			04/19/2022 22:59	Judith K. Clark	2319688