

Chemical Analysis Report

NE-DIST-2023-03-17-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Nassau North 2 Boat 2023**
Request ID: **RQ-2023-03-13-08**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 06-APR-2023 09:20

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Egan Creek at Atlantic

Collection Date/Time: 03/16/2023 09:50

Field ID: G4NE0285

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2394699	DEP SOP: NU-094-1	Color (true)	33		PCU	P427308	
	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P427313	
	EPA 300.0 Rev. 2.1	Chloride	1.2E+04		mg Cl/L	P427855	
		Sulfate	1.7E+03		mg SO4/L	P427858	
	SM 2320 B-2011	Total Alkalinity	117		mg CaCO3/L	P427604	
	SM 2540 C-2015	TDS	2.10E+04		mg/L	P427923	
	SM 2540 D-2015	TSS	12	AJ	mg/L	P427594	RPD
	SM 4500-F- C-2011	Fluoride	0.85		mg F/L	P427954	
2394700	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P427493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P427790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P427700	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P427531	
	SM 5310 B-2011	Organic Carbon	9.3		mg C/L	P427626	

Ref. Method and Comment:

SM 2540 D-2015: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: St Mary's R at Ga Line US 17

Collection Date/Time: 03/16/2023 10:35

Field ID: 19010001

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2394701	DEP SOP: NU-094-1	Color (true)	150		PCU	P427308	
	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P427313	
	EPA 300.0 Rev. 2.1	Chloride	2.7E+03		mg Cl/L	P427938	
		Sulfate	380		mg SO4/L	P427858	
	SM 2320 B-2011	Total Alkalinity	27		mg CaCO3/L	P427558	
	SM 2540 C-2015	TDS	4.91E+03		mg/L	P427923	
	SM 2540 D-2015	TSS	3	I	mg/L	P427593	
2394702	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P427560	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P427493	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P427790	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P427700	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P427531	
2394710	SM 5310 B-2011	Organic Carbon	16		mg C/L	P427683	
	EPA 200.7 Rev. 4.4	Calcium	68.7		mg/L	P427363	
		Iron	280		ug/L	P427363	
		Magnesium	192		mg/L	P427363	
		Potassium	56		mg/L	P427363	
		Sodium	1.49E+03		mg/L	P427363	
		Strontium	1.10E+03		ug/L	P427363	
		Tin	3.0	U	ug/L	P427363	
		Titanium	1.4	I	ug/L	P427363	
		Vanadium	2.0	U	ug/L	P427363	
		Zinc	5.0	U	ug/L	P427363	
	EPA 200.8 Rev. 5.4	Aluminum	178		ug/L	P427363	
		Antimony	0.069	I	ug/L	P427363	
		Arsenic	0.53		ug/L	P427363	
		Barium	28.3		ug/L	P427363	
		Beryllium	0.025	I	ug/L	P427363	
		Boron	576		ug/L	P427363	
		Cadmium	0.020	U	ug/L	P427363	
		Chromium	0.40	U	ug/L	P427363	
		Cobalt	0.107		ug/L	P427363	
		Copper	0.40	U	ug/L	P427363	
		Lead	0.23	I	ug/L	P427363	
		Manganese	9.53		ug/L	P427363	
		Molybdenum	1.71		ug/L	P427363	
		Nickel	0.50	U	ug/L	P427363	
		Selenium	0.21	I	ug/L	P427363	
		Silver	0.010	U	ug/L	P427363	
		Thallium	0.10	U	ug/L	P427363	
	SM 2340 B-2011	Hardness	960		mg/L	P427363	

Sample Location: Field Blank

Collection Date/Time: 03/16/2023 10:50

Field ID: FB_03162023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2394703	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P427309	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P427313	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P427855	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P427557	
	SM 2540 C-2015	TDS	15	U	mg/L	P427922	
	SM 2540 D-2015	TSS	2	U	mg/L	P427592	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P427559	MS
2394704	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P427568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P427736	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427468	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P427371	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P427683	
2394712	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P427363	
		Iron	30	U	ug/L	P427363	
		Magnesium	0.040	U	mg/L	P427363	
		Potassium	0.30	U	mg/L	P427363	
		Sodium	0.50	U	mg/L	P427363	
		Strontium	2.0	U	ug/L	P427363	
		Tin	3.0	U	ug/L	P427363	
		Titanium	0.75	U	ug/L	P427363	
		Vanadium	2.0	U	ug/L	P427363	
		Zinc	5.0	U	ug/L	P427363	
		Aluminum	5.0	U	ug/L	P427363	
		Antimony	0.050	U	ug/L	P427363	
		Arsenic	0.050	U	ug/L	P427363	
		Barium	0.20	U	ug/L	P427363	
	EPA 200.8 Rev. 5.4	Beryllium	0.010	U	ug/L	P427363	
		Boron	2.0	U	ug/L	P427363	
		Cadmium	0.020	U	ug/L	P427363	
		Chromium	0.40	U	ug/L	P427363	
		Cobalt	0.020	U	ug/L	P427363	
		Copper	0.40	U	ug/L	P427363	
		Lead	0.20	U	ug/L	P427363	
		Manganese	0.10	U	ug/L	P427363	
		Molybdenum	0.15	U	ug/L	P427363	
		Nickel	0.50	U	ug/L	P427363	
		Selenium	0.20	U	ug/L	P427363	
		Silver	0.010	U	ug/L	P427363	
		Thallium	0.10	U	ug/L	P427363	
		Hardness	0.35	U	mg/L	P427363	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Nassau Riv US 17

Collection Date/Time: 03/16/2023 11:45

Field ID: 19020002

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2394711	EPA 200.7 Rev. 4.4	Calcium	238		mg/L	P427684	
		Iron	250	I	ug/L	P427684	
		Magnesium	713		mg/L	P427684	
		Potassium	212		mg/L	P427684	
	EPA 200.8 Rev. 5.4	Sodium	5.55E+03		mg/L	P427684	
		Strontium	4.27E+03		ug/L	P427684	
		Tin	150	U	ug/L	P427684	
		Titanium	4.7	I	ug/L	P427684	
		Vanadium	6.0	U	ug/L	P427684	
		Zinc	15	U	ug/L	P427684	
		Aluminum	378		ug/L	P427684	
		Antimony	0.20	U	ug/L	P427684	
		Arsenic	1.54		ug/L	P427684	
		Barium	41.4		ug/L	P427684	
		Beryllium	0.040	U	ug/L	P427684	
		Boron	2.27E+03		ug/L	P427684	
		Cadmium	0.080	U	ug/L	P427684	
		Chromium	1.6	U	ug/L	P427684	
		Cobalt	0.22	I	ug/L	P427684	
		Copper	2.4	I	ug/L	P427684	
		Lead	2.0	U	ug/L	P427684	
		Manganese	32.7		ug/L	P427684	
		Molybdenum	5.8		ug/L	P427684	
		Nickel	2.0	U	ug/L	P427684	
		Selenium	0.80	U	ug/L	P427684	
		Silver	0.040	U	ug/L	P427684	
		Thallium	1.0	U	ug/L	P427684	
	SM 2340 B-2011	Hardness	3.53E+03		mg/L	P427684	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium and strontium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P427308

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P427309

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427313

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427363

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 200.7 Rev. 4.4
Batch ID: P427684

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: P427363

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P427363

Component	Result	Code	Units
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 200.8 Rev. 5.4

Batch ID: P427684

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: P427855

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427858

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427938

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427938

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427493

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427736

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427790

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427468

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427700

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427371

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427531

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: P427557

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

Reference Method: SM 2320 B-2011
Batch ID: P427558

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

Reference Method: SM 2320 B-2011
Batch ID: P427604

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

Reference Method: SM 2540 C-2015
Batch ID: P427922

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P427923

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P427592

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P427593

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P427594

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427559

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P427560

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427954

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P427626

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

Reference Method: SM 5310 B-2011
Batch ID: P427683

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: P427308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P427309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427313

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	107		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	104		P	85 - 115
Sodium	101		P	85 - 115
Strontium	103		P	85 - 115
Tin	108		P	85 - 115
Titanium	105		P	85 - 115
Vanadium	104		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	95.3		P	85 - 115
Strontium	97.5		P	85 - 115
Tin	101		P	85 - 115
Titanium	100		P	85 - 115
Vanadium	98.1		P	85 - 115
Zinc	94.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.2		P	85 - 115
Antimony	96.5		P	85 - 115
Arsenic	101		P	85 - 115
Barium	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P427363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Beryllium	98.6		P	85 - 115
Boron	96.5		P	85 - 115
Cadmium	98.3		P	85 - 115
Chromium	100		P	85 - 115
Cobalt	97.7		P	85 - 115
Copper	101		P	85 - 115
Lead	93.1		P	85 - 115
Manganese	98.8		P	85 - 115
Molybdenum	97.9		P	85 - 115
Nickel	102		P	85 - 115
Selenium	97.9		P	85 - 115
Silver	95.3		P	85 - 115
Thallium	97.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P427684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	80 - 120
Antimony	104		P	80 - 120
Arsenic	103		P	80 - 120
Barium	104		P	80 - 120
Beryllium	94.2		P	80 - 120
Boron	104		P	80 - 120
Cadmium	104		P	80 - 120
Chromium	103		P	80 - 120
Cobalt	104		P	80 - 120
Copper	102		P	80 - 120
Lead	97.1		P	80 - 120
Manganese	103		P	80 - 120
Molybdenum	102		P	80 - 120
Nickel	104		P	80 - 120
Selenium	100		P	80 - 120
Silver	102		P	80 - 120
Thallium	106		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427855

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427858

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427938

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427493

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427468

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427700

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427531

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P427557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P427558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	94.8		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P427604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P427922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.1		P	90 - 110

Reference Method: SM 2540 C-2015
Batch ID: P427923

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

Reference Method: SM 2540 D-2015
Batch ID: P427592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	96.4		P	85 - 106

Reference Method: SM 2540 D-2015
Batch ID: P427593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.3		P	85 - 106

Reference Method: SM 2540 D-2015
Batch ID: P427594

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	95.3		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P427559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P427560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P427954

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P427626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P427683

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.9		P	85 - 115

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394599	Calcium	104		P	80 - 120
2394599	Iron	106	106	P/P	80 - 120
2394599	Magnesium	106		P	80 - 120
2394599	Potassium	101	101	P/P	80 - 120
2394599	Sodium	99.2		P	80 - 120
2394599	Strontium	101	100	P/P	80 - 120
2394599	Tin	107	106	P/P	80 - 120
2394599	Titanium	103	103	P/P	80 - 120
2394599	Vanadium	103	103	P/P	80 - 120
2394599	Zinc	100	100	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396230	Iron	99.1	100	P/P	80 - 120
2396230	Tin	83.6	81.2	P/P	80 - 120
2396230	Titanium	102	102	P/P	80 - 120
2396230	Vanadium	101	99.5	P/P	80 - 120
2396230	Zinc	92.5	91.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394599	Aluminum	98.7	99.4	P/P	80 - 120
2394599	Antimony	97.7	98.9	P/P	80 - 120
2394599	Arsenic	99.8	101	P/P	80 - 120
2394599	Barium	100	102	P/P	80 - 120
2394599	Beryllium	94.3	98.9	P/P	80 - 120
2394599	Boron	99.6	101	P/P	80 - 120
2394599	Cadmium	101	102	P/P	80 - 120
2394599	Chromium	98.5	99.7	P/P	80 - 120
2394599	Cobalt	94.3	95.3	P/P	80 - 120
2394599	Copper	100	102	P/P	80 - 120
2394599	Lead	94.3	94.6	P/P	80 - 120
2394599	Manganese	96.9	98.4	P/P	80 - 120
2394599	Molybdenum	101	108	P/P	80 - 120
2394599	Nickel	96.9	99.2	P/P	80 - 120
2394599	Selenium	86.9	86.2	P/P	80 - 120
2394599	Silver	96.5	96.4	P/P	80 - 120
2394599	Thallium	101	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396230	Aluminum	109	111	P/P	80 - 120
2396230	Antimony	107	108	P/P	80 - 120
2396230	Arsenic	113	116	P/P	80 - 120
2396230	Barium	107	108	P/P	80 - 120
2396230	Beryllium	97.8	99.4	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P427684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396230	Boron	92.1	92.6	P/P	80 - 120
2396230	Cadmium	97.8	99.7	P/P	80 - 120
2396230	Chromium	99.9	101	P/P	80 - 120
2396230	Cobalt	115	117	P/P	80 - 120
2396230	Copper	111	111	P/P	80 - 120
2396230	Lead	104	106	P/P	80 - 120
2396230	Manganese	97.2	98.3	P/P	80 - 120
2396230	Molybdenum	118	120	P/P	80 - 120
2396230	Nickel	115	115	P/P	80 - 120
2396230	Selenium	100	104	P/P	80 - 120
2396230	Silver	93.1	93.7	P/P	80 - 120
2396230	Thallium	115	116	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394997	Chloride	96.1		P	90 - 110
2395043	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394997	Sulfate	90.3		P	90 - 110
2395043	Sulfate	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396562	Chloride	99.2		P	90 - 110
2396602	Chloride	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393951	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393563	Ammonia-N	99.0	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394688	Kjeldahl Nitrogen	100	99.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394310	Kjeldahl Nitrogen	97.2	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394643	NO2NO3-N	93.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394700	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394812	Total-P	92.2	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427531

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395162	Total-P	92.5	93.9	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P427559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394809	Fluoride	105	103	F/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P427560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2395045	Fluoride	104	103	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P427954

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2396528	Fluoride	102	102	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P427626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393602	Organic Carbon	89.1	91.5	P/P	85 - 115

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P427683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2394674	Organic Carbon	93.1	94.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P427308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394640	Color (true)	0.743	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P427309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394741	Color (true)	0.682	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394596	Turbidity	6.34	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394599	Calcium	0.0405	Spike	P	0 - 20
2394599	Iron	0.269	Spike	P	0 - 20
2394599	Magnesium	1.10	Spike	P	0 - 20
2394599	Potassium	0.331	Spike	P	0 - 20
2394599	Sodium	1.00	Spike	P	0 - 20
2394599	Strontium	0.194	Spike	P	0 - 20
2394599	Tin	1.54	Spike	P	0 - 20
2394599	Titanium	0.209	Spike	P	0 - 20
2394599	Vanadium	0.567	Spike	P	0 - 20
2394599	Zinc	0.205	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P427684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396230	Calcium	0.0182	Spike	P	0 - 20
2396230	Iron	0.792	Spike	P	0 - 20
2396230	Magnesium	0.174	Spike	P	0 - 20
2396230	Potassium	0.279	Spike	P	0 - 20
2396230	Sodium	1.00	Spike	P	0 - 20
2396230	Strontium	0.321	Spike	P	0 - 20
2396230	Tin	2.98	Spike	P	0 - 20
2396230	Titanium	0.469	Spike	P	0 - 20
2396230	Vanadium	1.60	Spike	P	0 - 20
2396230	Zinc	0.944	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P427363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394599	Aluminum	0.683	Spike	P	0 - 20
2394599	Antimony	1.23	Spike	P	0 - 20
2394599	Arsenic	1.11	Spike	P	0 - 20
2394599	Barium	1.23	Spike	P	0 - 20
2394599	Beryllium	4.74	Spike	P	0 - 20
2394599	Boron	1.47	Spike	P	0 - 20
2394599	Cadmium	1.50	Spike	P	0 - 20
2394599	Chromium	1.24	Spike	P	0 - 20
2394599	Cobalt	1.00	Spike	P	0 - 20
2394599	Copper	1.94	Spike	P	0 - 20
2394599	Lead	0.265	Spike	P	0 - 20
2394599	Manganese	1.32	Spike	P	0 - 20
2394599	Molybdenum	1.43	Spike	P	0 - 20
2394599	Nickel	2.29	Spike	P	0 - 20
2394599	Selenium	0.768	Spike	P	0 - 20
2394599	Silver	0.0998	Spike	P	0 - 20
2394599	Thallium	0.225	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P427684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396230	Aluminum	1.53	Spike	P	0 - 20
2396230	Antimony	0.813	Spike	P	0 - 20
2396230	Arsenic	1.80	Spike	P	0 - 20
2396230	Barium	0.688	Spike	P	0 - 20
2396230	Beryllium	1.58	Spike	P	0 - 20
2396230	Boron	0.0847	Spike	P	0 - 20
2396230	Cadmium	1.90	Spike	P	0 - 20
2396230	Chromium	0.769	Spike	P	0 - 20
2396230	Cobalt	1.18	Spike	P	0 - 20
2396230	Copper	0.579	Spike	P	0 - 20
2396230	Lead	1.39	Spike	P	0 - 20
2396230	Manganese	0.908	Spike	P	0 - 20
2396230	Molybdenum	1.58	Spike	P	0 - 20
2396230	Nickel	0.310	Spike	P	0 - 20
2396230	Selenium	3.23	Spike	P	0 - 20
2396230	Silver	0.633	Spike	P	0 - 20
2396230	Thallium	0.989	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P427855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394997	Chloride	0.514	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394997	Sulfate	0.391	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396562	Chloride	0.326	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393951	Ammonia-N	0.696	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393563	Ammonia-N	3.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394688	Kjeldahl Nitrogen	0.480	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394310	Kjeldahl Nitrogen	1.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394643	NO2NO3-N	0.207	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394700	NO2NO3-N	0.445	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394812	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395162	Total-P	1.32	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P427557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394809	Total Alkalinity	1.65	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P427558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395045	Total Alkalinity	1.45	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P427604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394311	Total Alkalinity	1.11	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P427922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394298	TDS	1.25	Sample	P	0 - 10

Reference Method: SM 2540 C-2015
Batch ID: P427923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394727	TDS	7.10	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P427593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394727	TSS	6.32	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2015
Batch ID: P427594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394699	TSS	10.2	Sample	F	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P427559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394809	Fluoride	0.992	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P427560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2395045	Fluoride	0.996	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P427954

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2396528	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P427626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393602	Organic Carbon	2.08	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P427683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2394674	Organic Carbon	0.693	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: A118058

Included Lab Sample IDs: 2394699, 2394701, 2394703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	99.5	P/P	90 - 110
Color (true)	99.5	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A118062

Included Lab Sample IDs: 2394699, 2394701, 2394703

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118130

Included Lab Sample IDs: 2394704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118131

Included Lab Sample IDs: 2394710, 2394712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.5	98.7	P/P	90 - 110
Antimony	95.1	94.3	P/P	90 - 110
Arsenic	100	99.0	P/P	90 - 110
Barium	97.7	96.8	P/P	90 - 110
Beryllium	97.3	97.8	P/P	90 - 110
Boron	94.0	96.9	P/P	90 - 110
Cadmium	98.4	96.8	P/P	90 - 110
Chromium	98.0	96.2	P/P	90 - 110
Cobalt	95.4	94.0	P/P	90 - 110
Copper	97.9	97.3	P/P	90 - 110
Lead	92.5	93.0	P/P	90 - 110
Manganese	96.6	95.9	P/P	90 - 110
Molybdenum	97.6	96.6	P/P	90 - 110
Nickel	99.6	97.9	P/P	90 - 110
Selenium	98.7	98.7	P/P	90 - 110
Silver	94.6	94.5	P/P	90 - 110
Thallium	99.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118134

Included Lab Sample IDs: 2394704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118136

Included Lab Sample IDs: 2394700, 2394702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.8	P/P	90 - 110
Ammonia-N	98.6	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118149

Included Lab Sample IDs: 2394712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	96.9	95.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A118161

Included Lab Sample IDs: 2394701, 2394703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.2	94.5	P/P	90 - 110
Total Alkalinity	94.5	92.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A118161

Included Lab Sample IDs: 2394701, 2394703

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118162

Included Lab Sample IDs: 2394704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A118170

Included Lab Sample IDs: 2394699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.4	97.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A118179

Included Lab Sample IDs: 2394700

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	95.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118180

Included Lab Sample IDs: 2394700

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118186

Included Lab Sample IDs: 2394702

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

Reference Method: SM 5310 B-2011

Run ID: A118205

Included Lab Sample IDs: 2394702, 2394704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118209

Included Lab Sample IDs: 2394700, 2394702

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118244

Included Lab Sample IDs: 2394710, 2394712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Calcium	104	106	P/P	90 - 110
Iron	104	105	P/P	90 - 110
Iron	105	106	P/P	90 - 110
Magnesium	104	105	P/P	90 - 110
Magnesium	105	105	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	99.2	97.3	P/P	90 - 110
Sodium	99.7	99.2	P/P	90 - 110
Strontium	101	102	P/P	90 - 110
Strontium	102	99.1	P/P	90 - 110
Tin	102	103	P/P	90 - 110
Tin	103	103	P/P	90 - 110
Titanium	102	103	P/P	90 - 110
Titanium	103	102	P/P	90 - 110
Vanadium	102	103	P/P	90 - 110
Vanadium	103	103	P/P	90 - 110
Zinc	102	105	P/P	90 - 110
Zinc	105	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A118247

Included Lab Sample IDs: 2394699, 2394701, 2394703

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.8	98.1	P/P	90 - 110
Chloride	97.9	99.0	P/P	90 - 110
Sulfate	97.4	98.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A118250

Included Lab Sample IDs: 2394711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	P/P	90 - 110
Antimony	99.9	102	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Barium	100	103	P/P	90 - 110
Beryllium	99.8	100	P/P	90 - 110
Boron	97.7	100	P/P	90 - 110
Cadmium	99.2	101	P/P	90 - 110
Chromium	99.5	101	P/P	90 - 110
Cobalt	103	105	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Lead	94.2	94.5	P/P	90 - 110
Manganese	99.4	102	P/P	90 - 110
Molybdenum	100	101	P/P	90 - 110
Nickel	103	106	P/P	90 - 110
Selenium	99.5	101	P/P	90 - 110
Silver	98.8	100	P/P	90 - 110
Thallium	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118273

Included Lab Sample IDs: 2394704

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	91.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A118291

Included Lab Sample IDs: 2394711

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.5	98.8	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	101	99.8	P/P	90 - 110
Sodium	94.7	94.0	P/P	90 - 110
Strontium	98.7	95.5	P/P	90 - 110
Tin	98.9	98.7	P/P	90 - 110
Titanium	99.5	99.8	P/P	90 - 110
Vanadium	98.1	98.7	P/P	90 - 110
Zinc	95.6	96.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118319

Included Lab Sample IDs: 2394700, 2394702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.4	92.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A118331

Included Lab Sample IDs: 2394699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	104	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
DEP SOP: NU-094-1	Color (true)	102				0.743	
	Color (true)	102				0.682	
EPA 180.1 Rev. 2.0	Turbidity	101				6.34	
EPA 200.7 Rev. 4.4	Calcium	106	104				0.0405
	Calcium	100					0.0182
	Iron	107	106	106			0.269
	Iron	104	100	99.1			0.792
	Magnesium	105	106				1.10
	Magnesium	102					0.174
	Potassium	104	101	101			0.331
	Potassium	101					0.279
	Sodium	101	99.2				1.00
	Sodium	95.3					1.00
	Strontium	103	101	100			0.194
	Strontium	97.5					0.321
	Tin	108	107	106			1.54
	Tin	101	83.6	81.2			2.98
	Titanium	105	103	103			0.209
	Titanium	100	102	102			0.469
	Vanadium	104	103	103			0.567
	Vanadium	98.1	101	99.5			1.60
	Zinc	106	100	100			0.205
	Zinc	94.8	92.5	91.6			0.944
EPA 200.8 Rev. 5.4	Aluminum	99.2	98.7	99.4			0.683
	Aluminum	105	109	111			1.53
	Antimony	96.5	97.7	98.9			1.23
	Antimony	104	107	108			0.813
	Arsenic	101	99.8	101			1.11
	Arsenic	103	113	116			1.80
	Barium	100	100	102			1.23
	Barium	104	107	108			0.688
	Beryllium	98.6	94.3	98.9			4.74
	Beryllium	94.2	97.8	99.4			1.58
	Boron	96.5	99.6	101			1.47
	Boron	104	92.1	92.6			0.0847
	Cadmium	98.3	101	102			1.50
	Cadmium	104	97.8	99.7			1.90
	Chromium	100	98.5	99.7			1.24
	Chromium	103	99.9	101			0.769
	Cobalt	97.7	94.3	95.3			1.00
	Cobalt	104	115	117			1.18
	Copper	101	100	102			1.94
	Copper	102	111	111			0.579
	Lead	93.1	94.3	94.6			0.265
	Lead	97.1	104	106			1.39
	Manganese	98.8	96.9	98.4			1.32
	Manganese	103	97.2	98.3			0.908
	Molybdenum	97.9	101	108			1.43
	Molybdenum	102	118	120			1.58
	Nickel	102	96.9	99.2			2.29
	Nickel	104	115	115			0.310
	Selenium	97.9	86.9	86.2			0.768
	Selenium	100	100	104			3.23
	Silver	95.3	96.5	96.4			0.0998

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 200.8 Rev. 5.4	Silver	102	93.1	93.7			0.633
	Thallium	97.5	101	102			0.225
	Thallium	106	115	116			0.989
EPA 300.0 Rev. 2.1	Chloride	99.0	96.1	97.5		0.514	
	Chloride	102	99.2	98.1		0.326	
	Sulfate	96.8	90.3	95.4		0.391	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	102	103			0.696
	Ammonia-N	100	99.0	103			3.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.6	100	99.3			0.480
	Kjeldahl Nitrogen	97.3	97.2	99.5			1.96
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	93.8				0.207
	NO2NO3-N	104	103	104			0.445
EPA 365.1 Rev. 2.0	Total-P	99.9	92.2	93.4			1.08
	Total-P	97.2	92.5	93.9			1.32
SM 2320 B-2011	Total Alkalinity	94.8				1.65	
	Total Alkalinity	94.8				1.45	
	Total Alkalinity	98.5				1.11	
SM 2540 C-2015	TDS	97.1				1.25	
	TDS	98.0				7.10	
SM 2540 D-2015	TSS	96.4					
	TSS	93.3				6.32	
	TSS	95.3				10.2	
SM 4500-F- C-2011	Fluoride	103	105	103			0.992
	Fluoride	103	104	103			0.996
	Fluoride	101	102	102			0.0
SM 5310 B-2011	Organic Carbon	97.4	89.1	91.5			2.08
	Organic Carbon	94.9	93.1	94.1			0.693

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2394699, 2394701, 2394703
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2394699, 2394701, 2394703
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2394710, 2394711, 2394712
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2394710, 2394711, 2394712
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2394699, 2394701, 2394703
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2394699, 2394701
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2394700, 2394702, 2394704
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2394700, 2394702, 2394704
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2394700, 2394702, 2394704
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2394700, 2394702, 2394704
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2394699, 2394701, 2394703
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2394710, 2394711, 2394712
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2394699, 2394701, 2394703
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2394699, 2394701, 2394703
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2394699, 2394701, 2394703
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2394700, 2394702, 2394704

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	03/17/2023			03/17/2023 14:05	Alexis Price	2394699, 2394701
	03/17/2023			03/17/2023 14:08	Alexis Price	2394703
	03/17/2023			03/17/2023 13:47	Anna M. Plaviak	2394699
EPA 180.1 Rev. 2.0	03/17/2023			03/17/2023 13:48	Anna M. Plaviak	2394701
	03/17/2023			03/17/2023 13:51	Anna M. Plaviak	2394703
	03/17/2023	03/20/2023 13:45	George D Taylor	03/28/2023 18:52	McKinley C Carter	2394712
EPA 200.7 Rev. 4.4	03/17/2023	03/20/2023 13:45	George D Taylor	03/28/2023 20:33	McKinley C Carter	2394710
	03/17/2023	03/20/2023 13:45	George D Taylor	03/28/2023 20:41	McKinley C Carter	2394710
	03/17/2023	03/27/2023 11:20	George D Taylor	03/30/2023 03:36	McKinley C Carter	2394711
EPA 200.8 Rev. 5.4	03/17/2023	03/27/2023 11:20	George D Taylor	03/30/2023 03:44	McKinley C Carter	2394711
	03/17/2023	03/20/2023 13:45	George D Taylor	03/21/2023 20:58	Conrad Hartmann	2394712
	03/17/2023	03/20/2023 13:45	George D Taylor	03/21/2023 21:43	Conrad Hartmann	2394710
EPA 300.0 Rev. 2.1	03/17/2023	03/20/2023 13:45	George D Taylor	03/22/2023 17:00	Conrad Hartmann	2394712
	03/17/2023	03/27/2023 11:20	George D Taylor	03/28/2023 17:29	Conrad Hartmann	2394711
	03/17/2023	03/27/2023 11:20	George D Taylor	03/28/2023 19:13	Conrad Hartmann	2394711
EPA 350.1 Rev. 2.0	03/17/2023			03/29/2023 12:55	Anna M. Plaviak	2394699
	03/17/2023			03/29/2023 13:10	Anna M. Plaviak	2394701
	03/17/2023			03/29/2023 13:26	Anna M. Plaviak	2394703
EPA 351.2 Rev. 2.0	03/17/2023			03/31/2023 12:35	James L Waggeberby	2394701
	03/17/2023			03/22/2023 12:05	Khloe J Berg	2394702
	03/17/2023			03/22/2023 14:33	Khloe J Berg	2394700
EPA 353.2 Rev. 2.0	03/17/2023			03/23/2023 13:47	Khloe J Berg	2394704
	03/17/2023	03/28/2023 16:17	Simonne.V. Calhoun	03/29/2023 14:01	Judith K. Clark	2394704
	03/17/2023	03/29/2023 15:39	Simonne.V. Calhoun	03/31/2023 11:28	Judith K. Clark	2394700
EPA 365.1 Rev. 2.0	03/17/2023	03/29/2023 15:39	Simonne.V. Calhoun	03/31/2023 11:30	Judith K. Clark	2394702
	03/17/2023			03/22/2023 09:48	Beverly Y. Sanders	2394704
	03/17/2023			03/27/2023 11:52	Beverly Y. Sanders	2394700
SM 2320 B-2011	03/17/2023			03/27/2023 11:58	Beverly Y. Sanders	2394702
	03/17/2023	03/21/2023 15:02	Adam P Silver	03/22/2023 12:46	James L Waggeberby	2394704
	03/17/2023	03/23/2023 14:00	Adam P Silver	03/24/2023 09:43	James L Waggeberby	2394700
SM 2340 B-2011	03/17/2023	03/23/2023 14:00	Adam P Silver	03/24/2023 13:56	James L Waggeberby	2394702
	03/17/2023			03/22/2023 19:50	Dale L. Simmons	2394703
	03/17/2023			03/23/2023 02:18	Dale L. Simmons	2394701
SM 2540 C-2015	03/17/2023			03/24/2023 06:22	Chandler E Cox	2394699
	03/17/2023			03/28/2023 18:52	McKinley C Carter	2394712
	03/17/2023			03/28/2023 20:41	McKinley C Carter	2394710
SM 2540 D-2015	03/17/2023			03/30/2023 03:44	McKinley C Carter	2394711
SM 4500-F- C-2011	03/17/2023			03/21/2023 16:04	Yijie Li	2394699, 2394701, 2394703
	03/17/2023			03/21/2023 16:04	Yijie Li	2394699, 2394701, 2394703
	03/17/2023			03/22/2023 19:50	Dale L. Simmons	2394703

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	03/17/2023			03/23/2023 02:18	Dale L. Simmons	2394701
	03/17/2023			04/01/2023 00:27	Dale L. Simmons	2394699
SM 5310 B-2011	03/17/2023			03/24/2023 01:53	Elise M. Gillis	2394700
	03/17/2023			03/25/2023 08:58	Khloe J Berg	2394702
	03/17/2023			03/25/2023 09:14	Khloe J Berg	2394704