

Chemical Analysis Report

NE-DIST-2023-02-03-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Nassau West 2023**
Request ID: **RQ-2023-02-06-28**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 01-MAR-2023 12:48



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: Swift Creek Pond Center

Collection Date/Time: 02/02/2023 10:35

Field ID: 21030066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384765	DEP SOP: NU-094-1	Color (true)	350		PCU	P425371	
	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P425374	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P425684	
		Sulfate	1.2		mg SO4/L	P425897	
	SM 2320 B-2011	Total Alkalinity	1.3	I	mg CaCO3/L	P425692	
	SM 2540 C-2015	TDS	49		mg/L	P426040	
	SM 2540 D-2015	TSS	3	I	mg/L	P425998	
	SM 4500-F- C-2011	Fluoride	0.034	I	mg F/L	P425854	
2384766	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P425863	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P425438	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P425599	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P425459	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P425513	
2384778	EPA 200.7 Rev. 4.4	Calcium	2.82		mg/L	P425440	
		Chromium	1.0	U	ug/L	P425440	
		Iron	630		ug/L	P425440	
		Magnesium	1.35		mg/L	P425440	
		Potassium	0.41	I	mg/L	P425440	
		Sodium	4.3		mg/L	P425440	
		Strontium	12.0		ug/L	P425440	
		Tin	3.0	U	ug/L	P425440	
	EPA 200.8 Rev. 5.4	Titanium	1.8	I	ug/L	P425440	
		Vanadium	2.0	U	ug/L	P425440	
		Zinc	5.0	U	ug/L	P425440	
		Aluminum	364		ug/L	P425440	
		Antimony	0.056	I	ug/L	P425440	
		Arsenic	0.37		ug/L	P425440	
		Barium	9.39		ug/L	P425440	
		Beryllium	0.018	I	ug/L	P425440	
		Boron	16.1		ug/L	P425440	
		Cadmium	0.020	U	ug/L	P425440	
		Cobalt	0.149		ug/L	P425440	
		Copper	0.40	U	ug/L	P425440	
		Lead	0.51		ug/L	P425440	
		Manganese	18.7		ug/L	P425440	
		Molybdenum	0.15	U	ug/L	P425440	
		Nickel	0.50	U	ug/L	P425440	
		Selenium	0.20	U	ug/L	P425440	
		Silver	0.010	U	ug/L	P425440	
		Thallium	0.10	U	ug/L	P425440	
	SM 2340 B-2011	Hardness	12.6		mg/L	P425440	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 02/09/2023.

Sample Location: ST MARYS S PRONG @ US 90

Collection Date/Time: 02/02/2023 11:35

Field ID: 19010021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384777	EPA 200.7 Rev. 4.4	Calcium	8.93		mg/L	P425440	
		Chromium	1.0	U	ug/L	P425440	
		Iron	430		ug/L	P425440	
		Magnesium	3.63		mg/L	P425440	
		Potassium	2.1		mg/L	P425440	
		Sodium	13.1		mg/L	P425440	
		Strontium	95.2		ug/L	P425440	
		Tin	3.0	U	ug/L	P425440	
		Titanium	1.2	I	ug/L	P425440	
		Vanadium	2.0	U	ug/L	P425440	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P425440	
		Aluminum	220		ug/L	P425440	
		Antimony	0.050	U	ug/L	P425440	
		Arsenic	0.29		ug/L	P425440	
		Barium	28.1		ug/L	P425440	
		Beryllium	0.018	I	ug/L	P425440	
		Boron	34.4		ug/L	P425440	
		Cadmium	0.021	I	ug/L	P425440	
		Cobalt	0.302		ug/L	P425440	
		Copper	0.40	U	ug/L	P425440	
	SM 2340 B-2011	Lead	0.24	I	ug/L	P425440	
		Manganese	9.61		ug/L	P425440	
		Molybdenum	0.57	I	ug/L	P425440	
		Nickel	0.52	I	ug/L	P425440	
		Selenium	0.20	U	ug/L	P425440	
		Silver	0.010	U	ug/L	P425440	
		Thallium	0.10	U	ug/L	P425440	
		Hardness	37.2		mg/L	P425440	

Sample Location: DEEP CR @ US 90

Collection Date/Time: 02/02/2023 12:55

Field ID: 19010085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384761	DEP SOP: NU-094-1	Color (true)	170		PCU	P425371	
	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P425374	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P425684	
		Sulfate	7.3		mg SO4/L	P425897	
	SM 2320 B-2011	Total Alkalinity	49	A	mg CaCO3/L	P425740	
	SM 2540 C-2015	TDS	141		mg/L	P426040	
	SM 2540 D-2015	TSS	2	I	mg/L	P425998	
2384763	SM 4500-F- C-2011	Fluoride	0.089	I	mg F/L	P425696	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P425863	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P426074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P425599	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P425699	
2384775	SM 5310 B-2011	Organic Carbon	21		mg C/L	P425513	
	EPA 200.7 Rev. 4.4	Calcium	17.3		mg/L	P425440	
		Chromium	1.0	U	ug/L	P425440	
		Iron	500		ug/L	P425440	
		Magnesium	4.06		mg/L	P425440	
		Potassium	4.9		mg/L	P425440	
		Sodium	21.6		mg/L	P425440	
		Strontium	130		ug/L	P425440	
		Tin	3.0	U	ug/L	P425440	
		Titanium	0.94	I	ug/L	P425440	
		Vanadium	2.0	U	ug/L	P425440	
		Zinc	5.0	U	ug/L	P425440	
	EPA 200.8 Rev. 5.4	Aluminum	142		ug/L	P425440	
		Antimony	0.16	I	ug/L	P425440	
		Arsenic	0.53		ug/L	P425440	
		Barium	18.6		ug/L	P425440	
		Beryllium	0.010	U	ug/L	P425440	
		Boron	71.1		ug/L	P425440	
		Cadmium	0.020	U	ug/L	P425440	
		Cobalt	0.189		ug/L	P425440	
		Copper	0.52	I	ug/L	P425440	
		Lead	0.26	I	ug/L	P425440	
		Manganese	30.6		ug/L	P425440	
		Molybdenum	1.13		ug/L	P425440	
		Nickel	1.1	I	ug/L	P425440	
		Selenium	0.20	U	ug/L	P425440	
		Silver	0.010	U	ug/L	P425440	
		Thallium	0.10	U	ug/L	P425440	
	SM 2340 B-2011	Hardness	60.0		mg/L	P425440	

Ref. Method and Comment:

SM 2540 D-2015: 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 and relative percent difference are unavailable because of high analyte concentration in the QC sample.

Sample Location: ST MARYS RIVER AT SR 121 GA LINE

Collection Date/Time: 02/02/2023 12:20

Field ID: 19010002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384762	DEP SOP: NU-094-1	Color (true)	280		PCU	P425371	
	EPA 180.1 Rev. 2.0	Turbidity	2.3	A	NTU	P425374	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P425684	
		Sulfate	0.81		mg SO4/L	P425897	
	SM 2320 B-2011	Total Alkalinity	3.3		mg CaCO3/L	P425692	
	SM 2540 C-2015	TDS	61		mg/L	P426040	
	SM 2540 D-2015	TSS	2	U	mg/L	P425998	
	SM 4500-F- C-2011	Fluoride	0.035	I	mg F/L	P425854	
2384764	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P425863	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63	J	mg N/L	P425438	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P425599	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P425699	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P425513	
2384776	EPA 200.7 Rev. 4.4	Calcium	3.46		mg/L	P425440	
		Chromium	1.0	U	ug/L	P425440	
		Iron	450		ug/L	P425440	
		Magnesium	1.77		mg/L	P425440	
		Potassium	0.30	U	mg/L	P425440	
		Sodium	4.3		mg/L	P425440	
		Strontium	12.8		ug/L	P425440	
		Tin	3.0	U	ug/L	P425440	
	EPA 200.8 Rev. 5.4	Titanium	1.3	I	ug/L	P425440	
		Vanadium	2.0	U	ug/L	P425440	
		Zinc	5.0	U	ug/L	P425440	
		Aluminum	252		ug/L	P425440	
		Antimony	0.050	U	ug/L	P425440	
		Arsenic	0.29		ug/L	P425440	
		Barium	13.1		ug/L	P425440	
		Beryllium	0.019	I	ug/L	P425440	
		Boron	11.5		ug/L	P425440	
		Cadmium	0.020	U	ug/L	P425440	
		Cobalt	0.293		ug/L	P425440	
		Copper	0.40	U	ug/L	P425440	
		Lead	0.32	I	ug/L	P425440	
		Manganese	9.60		ug/L	P425440	
		Molybdenum	0.30	I	ug/L	P425440	
		Nickel	0.50	U	ug/L	P425440	
		Selenium	0.20	U	ug/L	P425440	
		Silver	0.010	U	ug/L	P425440	
		Thallium	0.10	U	ug/L	P425440	
	SM 2340 B-2011	Hardness	15.9		mg/L	P425440	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: FB

Collection Date/Time: 02/02/2023 12:30

Field ID: FB_02022023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384767	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P425371	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P425374	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P426056	
		Sulfate	0.20	U	mg SO4/L	P426059	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P425692	
	SM 2540 C-2015	TDS	15	U	mg/L	P426040	
	SM 2540 D-2015	TSS	2	U	mg/L	P425998	
2384768	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P425854	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P425863	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P426074	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P425599	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P425459	
2384779	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P425644	
	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P425440	
		Chromium	1.0	U	ug/L	P425440	
		Iron	30	U	ug/L	P425440	
		Magnesium	0.040	U	mg/L	P425440	
		Potassium	0.30	U	mg/L	P425440	
		Sodium	0.50	U	mg/L	P425440	
		Strontium	2.0	U	ug/L	P425440	
		Tin	3.0	U	ug/L	P425440	
		Titanium	0.75	U	ug/L	P425440	
		Vanadium	2.0	U	ug/L	P425440	
		Zinc	5.0	U	ug/L	P425440	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P425440	
		Antimony	0.050	U	ug/L	P425440	
		Arsenic	0.050	U	ug/L	P425440	
		Barium	0.20	U	ug/L	P425440	
		Beryllium	0.010	U	ug/L	P425440	
		Boron	2.0	U	ug/L	P425440	
		Cadmium	0.020	U	ug/L	P425440	
		Cobalt	0.020	U	ug/L	P425650	
		Copper	0.40	U	ug/L	P425440	
		Lead	0.20	U	ug/L	P425440	
		Manganese	0.10	U	ug/L	P425440	
		Molybdenum	0.15	U	ug/L	P425440	
		Nickel	0.50	U	ug/L	P425440	
		Selenium	0.20	U	ug/L	P425440	
		Silver	0.010	U	ug/L	P425440	
		Thallium	0.10	U	ug/L	P425440	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P425440	

Ref. Method and Comment:

SM 2540 D-2015: 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 and relative percent difference 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: P425371

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425374

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P425440

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/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: P425440

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
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: P425650

Component	Result	Code	Units
Cobalt	0.020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425684

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425897

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426056

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426059

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425863

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425438

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426074

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425599

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425459

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425699

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

Reference Method: SM 2320 B-2011
Batch ID: P425692

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

Reference Method: SM 2320 B-2011
Batch ID: P425740

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

Reference Method: SM 2540 C-2015
Batch ID: P426040

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P425998

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P425696

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P425854

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P425513

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

Reference Method: SM 5310 B-2011
Batch ID: P425644

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: P425371

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.6		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P425440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Chromium	99.2		P	85 - 115
Iron	103		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	104		P	85 - 115
Sodium	104		P	85 - 115
Strontium	104		P	85 - 115
Tin	99.8		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	99.8		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425440

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.0		P	85 - 115
Antimony	95.2		P	85 - 115
Arsenic	100		P	85 - 115
Barium	102		P	85 - 115
Beryllium	96.5		P	85 - 115
Boron	98.4		P	85 - 115
Cadmium	98.2		P	85 - 115
Cobalt	98.0		P	85 - 115
Copper	99.6		P	85 - 115
Lead	92.0		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	94.1		P	85 - 115
Nickel	100		P	85 - 115
Selenium	97.5		P	85 - 115
Silver	96.2		P	85 - 115
Thallium	94.4		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cobalt	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425684

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425897

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426059

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425863

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	90.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426074

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425599

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425459

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425699

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

Reference Method: SM 2320 B-2011
Batch ID: P425692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.9		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P425740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	95.6		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P426040

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

Reference Method: SM 2540 D-2015
Batch ID: P425998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.1		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P425696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P425854

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

Reference Method: SM 5310 B-2011
Batch ID: P425513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P425644

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P425440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384724	Calcium	102		P	80 - 120
2384724	Chromium	99.5	99.1	P/P	80 - 120
2384724	Iron	104	105	P/P	80 - 120
2384724	Magnesium	103	103	P/P	80 - 120
2384724	Potassium	101	100	P/P	80 - 120
2384724	Sodium	104		P	80 - 120
2384724	Strontium	103	102	P/P	80 - 120
2384724	Tin	102	104	P/P	80 - 120
2384724	Titanium	102	102	P/P	80 - 120
2384724	Vanadium	101	101	P/P	80 - 120
2384724	Zinc	102	103	P/P	80 - 120
2384727	Calcium	103		P	80 - 120
2384727	Chromium	99.4		P	80 - 120
2384727	Iron	104		P	80 - 120
2384727	Magnesium	104		P	80 - 120
2384727	Potassium	101		P	80 - 120
2384727	Sodium	106		P	80 - 120
2384727	Strontium	101		P	80 - 120
2384727	Tin	101		P	80 - 120
2384727	Titanium	101		P	80 - 120
2384727	Vanadium	100		P	80 - 120
2384727	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P425440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384724	Aluminum	96.6	97.9	P/P	80 - 120
2384724	Antimony	97.6	98.0	P/P	80 - 120
2384724	Arsenic	101	103	P/P	80 - 120
2384724	Barium	103	104	P/P	80 - 120
2384724	Beryllium	94.8	98.9	P/P	80 - 120
2384724	Boron	97.1	97.6	P/P	80 - 120
2384724	Cadmium	101	102	P/P	80 - 120
2384724	Cobalt	97.7	98.4	P/P	80 - 120
2384724	Copper	102	102	P/P	80 - 120
2384724	Lead	93.0	94.4	P/P	80 - 120
2384724	Manganese	101	102	P/P	80 - 120
2384724	Molybdenum	96.5	97.8	P/P	80 - 120
2384724	Nickel	102	102	P/P	80 - 120
2384724	Selenium	96.1	97.2	P/P	80 - 120
2384724	Silver	95.8	96.2	P/P	80 - 120
2384724	Thallium	96.3	98.3	P/P	80 - 120
2384727	Aluminum	97.4		P	80 - 120
2384727	Antimony	95.7		P	80 - 120
2384727	Arsenic	99.4		P	80 - 120
2384727	Barium	103		P	80 - 120
2384727	Beryllium	97.4		P	80 - 120
2384727	Boron	96.9		P	80 - 120
2384727	Cadmium	100		P	80 - 120
2384727	Cobalt	96.8		P	80 - 120
2384727	Copper	99.9		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384727	Lead	93.0		P	80 - 120
2384727	Manganese	101		P	80 - 120
2384727	Molybdenum	94.5		P	80 - 120
2384727	Nickel	102		P	80 - 120
2384727	Selenium	97.0		P	80 - 120
2384727	Silver	95.1		P	80 - 120
2384727	Thallium	96.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386251	Cobalt	99.0	101	P/P	80 - 120
2386397	Cobalt	97.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384629	Chloride	96.7		P	90 - 110
2384696	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384629	Sulfate	92.4		P	90 - 110
2384696	Sulfate	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386165	Chloride	91.6		P	90 - 110
2386243	Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386165	Sulfate	93.0		P	90 - 110
2386243	Sulfate	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384749	Ammonia-N	99.4	96.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384764	Kjeldahl Nitrogen	87.4	91.4	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384749	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384798	Total-P	107	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384751	Total-P	99.5	99.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P425696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2383791	Fluoride	94.0	95.2	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P425854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385932	Fluoride	101	101	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P425513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384710	Organic Carbon	95.8	98.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P425644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2385099	Organic Carbon	95.4	97.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P425371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384786	Color (true)	0.208	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P425374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384762	Turbidity	3.01	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P425440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384724	Calcium	0.227	Spike	P	0 - 20
2384724	Chromium	0.476	Spike	P	0 - 20
2384724	Iron	0.752	Spike	P	0 - 20
2384724	Magnesium	0.486	Spike	P	0 - 20
2384724	Potassium	0.813	Spike	P	0 - 20
2384724	Sodium	1.26	Spike	P	0 - 20
2384724	Strontium	0.514	Spike	P	0 - 20
2384724	Tin	1.77	Spike	P	0 - 20
2384724	Titanium	0.263	Spike	P	0 - 20
2384724	Vanadium	0.259	Spike	P	0 - 20
2384724	Zinc	0.791	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384724	Aluminum	1.30	Spike	P	0 - 20
2384724	Antimony	0.445	Spike	P	0 - 20
2384724	Arsenic	1.27	Spike	P	0 - 20
2384724	Barium	1.03	Spike	P	0 - 20
2384724	Beryllium	4.14	Spike	P	0 - 20
2384724	Boron	0.483	Spike	P	0 - 20
2384724	Cadmium	0.687	Spike	P	0 - 20
2384724	Cobalt	0.652	Spike	P	0 - 20
2384724	Copper	0.267	Spike	P	0 - 20
2384724	Lead	1.52	Spike	P	0 - 20
2384724	Manganese	0.152	Spike	P	0 - 20
2384724	Molybdenum	1.38	Spike	P	0 - 20
2384724	Nickel	0.203	Spike	P	0 - 20
2384724	Selenium	1.16	Spike	P	0 - 20
2384724	Silver	0.456	Spike	P	0 - 20
2384724	Thallium	2.03	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P425650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386251	Cobalt	1.92	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384629	Chloride	0.791	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P425897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384629	Sulfate	2.98	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386165	Chloride	2.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P426059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386165	Sulfate	2.91	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384749	Ammonia-N	1.96	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384764	Kjeldahl Nitrogen	3.19	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384749	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384798	Total-P	1.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384751	Total-P	0.242	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P425692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384704	Total Alkalinity	0.394	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P425740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384761	Total Alkalinity	1.29	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P426040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384704	TDS	5.51	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P425696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2383791	Fluoride	0.978	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P425854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385932	Fluoride	0.492	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P425513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384710	Organic Carbon	2.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P425644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2385099	Organic Carbon	1.80	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: A117260

Included Lab Sample IDs: 2384761, 2384762, 2384765, 2384767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.2	P/P	90 - 110
Color (true)	101	98.9	P/P	90 - 110
Color (true)	98.9	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A117261

Included Lab Sample IDs: 2384761, 2384762, 2384765, 2384767

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

Reference Method: SM 5310 B-2011

Run ID: A117313

Included Lab Sample IDs: 2384763, 2384764, 2384766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	100	P/P	90 - 110
Organic Carbon	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A117317

Included Lab Sample IDs: 2384761, 2384762, 2384765

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117325

Included Lab Sample IDs: 2384764, 2384766

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	92.7	P/P	90 - 110
Kjeldahl Nitrogen	99.9	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117331

Included Lab Sample IDs: 2384766, 2384768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	100	P/P	90 - 110
Total-P	98.5	97.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117342

Included Lab Sample IDs: 2384775, 2384776, 2384777, 2384778, 2384779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.3	98.1	P/P	90 - 110
Aluminum	98.1	97.2	P/P	90 - 110
Antimony	95.0	95.9	P/P	90 - 110
Antimony	95.9	95.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117342

Included Lab Sample IDs: 2384775, 2384776, 2384777, 2384778, 2384779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	101	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Barium	101	100	P/P	90 - 110
Barium	99.4	101	P/P	90 - 110
Beryllium	101	102	P/P	90 - 110
Beryllium	102	102	P/P	90 - 110
Boron	94.0	94.2	P/P	90 - 110
Boron	94.2	93.0	P/P	90 - 110
Cadmium	98.5	99.2	P/P	90 - 110
Cadmium	99.2	98.7	P/P	90 - 110
Cobalt	96.8	96.2	P/P	90 - 110
Copper	99.0	99.4	P/P	90 - 110
Copper	99.4	99.3	P/P	90 - 110
Lead	95.9	96.3	P/P	90 - 110
Lead	96.3	95.7	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Manganese	100	101	P/P	90 - 110
Molybdenum	94.0	94.2	P/P	90 - 110
Molybdenum	94.2	94.0	P/P	90 - 110
Nickel	100	99.2	P/P	90 - 110
Nickel	98.4	100	P/P	90 - 110
Selenium	97.8	98.8	P/P	90 - 110
Selenium	98.8	98.3	P/P	90 - 110
Thallium	96.0	96.5	P/P	90 - 110
Thallium	96.5	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117352

Included Lab Sample IDs: 2384763, 2384764, 2384766, 2384768

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117366

Included Lab Sample IDs: 2384775, 2384776, 2384777, 2384778, 2384779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	94.1	93.3	P/P	90 - 110
Silver	94.5	94.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A117374

Included Lab Sample IDs: 2384768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.9	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A117395

Included Lab Sample IDs: 2384761, 2384762, 2384765, 2384767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.9	98.4	P/P	90 - 110
Total Alkalinity	97.1	94.9	P/P	90 - 110
Total Alkalinity	98.4	95.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A117395

Included Lab Sample IDs: 2384761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A117420

Included Lab Sample IDs: 2384779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.1	97.2	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Magnesium	100	98.9	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Strontium	106	106	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	102	102	P/P	90 - 110
Vanadium	101	100	P/P	90 - 110
Zinc	104	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A117426

Included Lab Sample IDs: 2384767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	94.9	94.9	P/P	90 - 110
Sulfate	98.9	95.9	P/P	90 - 110
Sulfate	99.2	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117430

Included Lab Sample IDs: 2384763

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117431

Included Lab Sample IDs: 2384764

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A117439

Included Lab Sample IDs: 2384775, 2384776, 2384777, 2384778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	105	102	P/P	90 - 110
Chromium	102	102	P/P	90 - 110
Iron	105	105	P/P	90 - 110
Magnesium	104	103	P/P	90 - 110
Potassium	104	105	P/P	90 - 110
Sodium	108	105	P/P	90 - 110
Strontium	104	105	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	101	102	P/P	90 - 110
Vanadium	101	101	P/P	90 - 110
Zinc	104	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A117441

Included Lab Sample IDs: 2384779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	98.7	96.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A117452

Included Lab Sample IDs: 2384762, 2384765, 2384767

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117455

Included Lab Sample IDs: 2384763, 2384764, 2384766, 2384768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117612

Included Lab Sample IDs: 2384763, 2384768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.4	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	101				0.208	
EPA 180.1 Rev. 2.0	Turbidity	99.6				3.01	
EPA 200.7 Rev. 4.4	Calcium	100	102	103			0.227
	Chromium	99.2	99.4	99.5	99.1		0.476
	Iron	103	104	105	104		0.752
	Magnesium	103	103	103	104		0.486
	Potassium	104	101	100	101		0.813
	Sodium	104	104	106			1.26
	Strontium	104	103	102	101		0.514
	Tin	99.8	102	104	101		1.77
	Titanium	101	102	102	101		0.263
	Vanadium	99.8	101	101	100		0.259
	Zinc	100	102	103	102		0.791
EPA 200.8 Rev. 5.4	Aluminum	99.0	96.6	97.9	97.4		1.30
	Antimony	95.2	97.6	98.0	95.7		0.445
	Arsenic	100	101	103	99.4		1.27
	Barium	102	103	104	103		1.03
	Beryllium	96.5	94.8	98.9	97.4		4.14
	Boron	98.4	97.1	97.6	96.9		0.483
	Cadmium	98.2	101	102	100		0.687
	Cobalt	98.0	97.7	98.4	96.8		0.652
	Cobalt	101	99.0	101	97.5		1.92
	Copper	99.6	102	102	99.9		0.267
	Lead	92.0	93.0	94.4	93.0		1.52
	Manganese	100	101	102	101		0.152
	Molybdenum	94.1	96.5	97.8	94.5		1.38
	Nickel	100	102	102	102		0.203
	Selenium	97.5	96.1	97.2	97.0		1.16
	Silver	96.2	95.8	96.2	95.1		0.456
	Thallium	94.4	96.3	98.3	96.6		2.03
EPA 300.0 Rev. 2.1	Chloride	103	96.7	104		0.791	
	Chloride	95.3	91.6	95.9		2.55	
	Sulfate	99.0	92.4	97.6		2.98	
	Sulfate	99.8	93.0	98.1		2.91	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	99.4	96.6			1.96
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	90.7	87.4	91.4			3.19
	Kjeldahl Nitrogen	102					
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103			0.0
EPA 365.1 Rev. 2.0	Total-P	107	107	109			1.82
	Total-P	98.8	99.5	99.8			0.242
SM 2320 B-2011	Total Alkalinity	96.9				0.394	
	Total Alkalinity	95.6				1.29	
SM 2540 C-2015	TDS	96.3				5.51	
SM 2540 D-2015	TSS	93.1					
SM 4500-F- C-2011	Fluoride	96.1	94.0	95.2			0.978
	Fluoride	101	101	101			0.492
SM 5310 B-2011	Organic Carbon	99.4	95.8	98.2			2.58
	Organic Carbon	94.6	95.4	97.7			1.80

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2384761, 2384762, 2384765, 2384767

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2384761, 2384762, 2384765, 2384767
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2384775, 2384776, 2384777, 2384778, 2384779
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2384775, 2384776, 2384777, 2384778, 2384779
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2384761, 2384762, 2384765, 2384767
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2384761, 2384762, 2384765, 2384767
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2384763, 2384764, 2384766, 2384768
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2384763, 2384764, 2384766, 2384768
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2384763, 2384764, 2384766, 2384768
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2384763, 2384764, 2384766, 2384768
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2384761, 2384762, 2384765, 2384767
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2384775, 2384776, 2384777, 2384778, 2384779
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2384761, 2384762, 2384765, 2384767
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2384761, 2384762, 2384765, 2384767
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2384761, 2384762, 2384765, 2384767
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2384763, 2384764, 2384766, 2384768

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	02/03/2023			02/03/2023 15:25	Alexis Price	2384767
	02/03/2023			02/03/2023 15:35	Alexis Price	2384761, 2384762
	02/03/2023			02/03/2023 15:37	Alexis Price	2384765
EPA 180.1 Rev. 2.0	02/03/2023			02/03/2023 15:20	Anna M. Plaviak	2384761
	02/03/2023			02/03/2023 15:22	Anna M. Plaviak	2384762
	02/03/2023			02/03/2023 15:28	Anna M. Plaviak	2384765
EPA 200.7 Rev. 4.4	02/03/2023			02/03/2023 15:29	Anna M. Plaviak	2384767
	02/03/2023	02/07/2023 11:45	George D Taylor	02/14/2023 02:17	McKinley C Carter	2384779
	02/03/2023	02/07/2023 11:45	George D Taylor	02/14/2023 15:51	McKinley C Carter	2384775
EPA 200.8 Rev. 5.4	02/03/2023	02/07/2023 11:45	George D Taylor	02/14/2023 16:05	McKinley C Carter	2384776
	02/03/2023	02/07/2023 11:45	George D Taylor	02/14/2023 16:12	McKinley C Carter	2384777
	02/03/2023	02/07/2023 11:45	George D Taylor	02/14/2023 16:20	McKinley C Carter	2384778
EPA 300.0 Rev. 2.1	02/03/2023	02/07/2023 11:45	George D Taylor	02/08/2023 21:56	Emily M Philpot	2384779
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 00:02	Emily M Philpot	2384775
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 00:11	Emily M Philpot	2384776
EPA 350.1 Rev. 2.0	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 00:21	Emily M Philpot	2384777
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 00:31	Emily M Philpot	2384778
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 14:34	Emily M Philpot	2384775
EPA 351.2 Rev. 2.0	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 14:41	Emily M Philpot	2384776
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 14:47	Emily M Philpot	2384777
	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 14:53	Emily M Philpot	2384778
EPA 353.2 Rev. 2.0	02/03/2023	02/07/2023 11:45	George D Taylor	02/09/2023 15:37	Emily M Philpot	2384779
	02/03/2023	02/10/2023 13:20	George D Taylor	02/14/2023 16:46	Emily M Philpot	2384779
	02/03/2023			02/11/2023 11:05	Anna M. Plaviak	2384761
EPA 355.2 Rev. 2.0	02/03/2023			02/11/2023 11:20	Anna M. Plaviak	2384762
	02/03/2023			02/11/2023 11:35	Anna M. Plaviak	2384765
	02/03/2023			02/16/2023 01:25	Anna M. Plaviak	2384761
EPA 355.3 Rev. 2.0	02/03/2023			02/16/2023 01:40	Anna M. Plaviak	2384762
	02/03/2023			02/16/2023 01:55	Anna M. Plaviak	2384765
	02/03/2023			02/18/2023 01:23	Anna M. Plaviak	2384767
EPA 355.4 Rev. 2.0	02/03/2023			02/15/2023 11:47	Ping Hua	2384763
	02/03/2023			02/15/2023 11:48	Ping Hua	2384764
	02/03/2023			02/15/2023 11:50	Ping Hua	2384766
EPA 355.5 Rev. 2.0	02/03/2023			02/15/2023 11:51	Ping Hua	2384768
	02/03/2023	02/07/2023 10:58	Judith K. Clark	02/08/2023 12:00	Samantha L Bates	2384764
	02/03/2023	02/07/2023 10:58	Judith K. Clark	02/08/2023 12:08	Samantha L Bates	2384766
EPA 355.6 Rev. 2.0	02/03/2023	02/20/2023 12:20	Simonne.V. Calhoun	02/22/2023 17:03	Samantha L Bates	2384763
	02/03/2023	02/20/2023 12:20	Simonne.V. Calhoun	02/22/2023 17:04	Samantha L Bates	2384768
	02/03/2023			02/09/2023 11:05	Beverly Y. Sanders	2384763
EPA 355.7 Rev. 2.0	02/03/2023			02/09/2023 11:06	Beverly Y. Sanders	2384764

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	02/03/2023			02/09/2023 11:07	Beverly Y. Sanders	2384766
	02/03/2023			02/09/2023 11:09	Beverly Y. Sanders	2384768
EPA 365.1 Rev. 2.0	02/03/2023	02/07/2023 13:32	Adam P Silver	02/08/2023 14:57	James L Waggeberby	2384768
	02/03/2023	02/07/2023 13:32	Adam P Silver	02/08/2023 15:06	James L Waggeberby	2384766
	02/03/2023	02/13/2023 12:58	Alexis Price	02/13/2023 15:38	James L Waggeberby	2384763
	02/03/2023	02/13/2023 12:58	Alexis Price	02/14/2023 11:03	James L Waggeberby	2384764
SM 2320 B-2011	02/03/2023			02/09/2023 20:20	Dale L. Simmons	2384762
	02/03/2023			02/09/2023 21:07	Dale L. Simmons	2384765
	02/03/2023			02/09/2023 21:16	Dale L. Simmons	2384767
	02/03/2023			02/10/2023 00:27	Dale L. Simmons	2384761
SM 2340 B-2011	02/03/2023			02/14/2023 02:17	McKinley C Carter	2384779
	02/03/2023			02/14/2023 15:51	McKinley C Carter	2384775
	02/03/2023			02/14/2023 16:05	McKinley C Carter	2384776
	02/03/2023			02/14/2023 16:12	McKinley C Carter	2384777
	02/03/2023			02/14/2023 16:20	McKinley C Carter	2384778
SM 2540 C-2015	02/03/2023			02/08/2023 14:40	Yijie Li	2384761, 2384762, 2384765, 2384767
SM 2540 D-2015	02/03/2023			02/08/2023 14:40	Yijie Li	2384761, 2384762, 2384765, 2384767
SM 4500-F- C-2011	02/03/2023			02/10/2023 00:15	Dale L. Simmons	2384761
	02/03/2023			02/15/2023 07:32	Dale L. Simmons	2384762
	02/03/2023			02/15/2023 07:37	Dale L. Simmons	2384765
	02/03/2023			02/15/2023 07:42	Dale L. Simmons	2384767
SM 5310 B-2011	02/03/2023			02/07/2023 19:47	Elise M. Gillis	2384763
	02/03/2023			02/07/2023 20:30	Elise M. Gillis	2384764
	02/03/2023			02/07/2023 20:44	Elise M. Gillis	2384766
	02/03/2023			02/09/2023 18:41	Elise M. Gillis	2384768