Chemical Analysis Report

NE-DIST-2022-07-19-01

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

Event Description: **Gainesville 2022**
Request ID: **RQ-2022-07-11-13**
Customer: **NE-DIST**
Project ID: **SMP**

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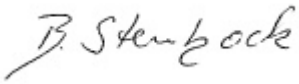
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 03-AUG-2022 17:37



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: Little Hatchet CR East at SR26 **Collection Date/Time: 07/18/2022 10:10**

Field ID: G1NE0948 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342240	EPA 200.7 Rev. 4.4	Calcium	21.6		mg/L	P416877	
		Iron	380		ug/L	P416877	
		Magnesium	4.23		mg/L	P416877	
		Potassium	0.70	I	mg/L	P416877	
		Sodium	4.7		mg/L	P416877	
		Strontium	62.6		ug/L	P416877	
		Tin	3.0	U	ug/L	P416877	
		Titanium	1.9	I	ug/L	P416877	
		Vanadium	2.0	U	ug/L	P416877	
		Zinc	5.0	U	ug/L	P416877	
	EPA 200.8 Rev. 5.4	Aluminum	118		ug/L	P416877	
		Antimony	0.14	I	ug/L	P416877	
		Arsenic	0.82		ug/L	P416877	
		Barium	10.6		ug/L	P416877	
		Beryllium	0.010	U	ug/L	P417350	
		Boron	20.9		ug/L	P416877	
		Cadmium	0.020	U	ug/L	P416877	
		Chromium	0.51	I	ug/L	P416877	
		Cobalt	0.142		ug/L	P416877	
		Copper	0.40	U	ug/L	P417350	
		Lead	0.22	I	ug/L	P416877	
		Manganese	9.93		ug/L	P416877	
		Molybdenum	0.41	I	ug/L	P416877	
		Nickel	0.50	U	ug/L	P416877	
		Selenium	0.20	U	ug/L	P416877	
		Silver	0.010	U	ug/L	P416877	
		Thallium	0.10	U	ug/L	P416877	
	SM 2340 B-2011	Hardness	71.3		mg/L	P416877	

Sample Location: Little Hatchet CR West at CR222 **Collection Date/Time: 07/18/2022 10:25**

Field ID: G1NE0947 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342241	EPA 200.7 Rev. 4.4	Calcium	26.8		mg/L	P416877	
		Iron	720		ug/L	P416877	
		Magnesium	5.06		mg/L	P416877	
		Potassium	0.81	I	mg/L	P416877	
		Sodium	4.7		mg/L	P416877	
		Strontium	89.8		ug/L	P416877	
		Tin	3.0	U	ug/L	P416877	
		Titanium	5.8		ug/L	P416877	
		Vanadium	2.3	I	ug/L	P416877	
		Zinc	5.0	U	ug/L	P416877	
	EPA 200.8 Rev. 5.4	Aluminum	268		ug/L	P416877	
		Antimony	0.15	I	ug/L	P416877	
		Arsenic	1.17		ug/L	P416877	
		Barium	12.0		ug/L	P416877	
		Beryllium	0.016	I	ug/L	P417350	
		Boron	19.7		ug/L	P416877	
		Cadmium	0.020	U	ug/L	P416877	
		Chromium	0.85	I	ug/L	P416877	
		Cobalt	0.165		ug/L	P416877	
		Copper	0.69	I	ug/L	P417350	
		Lead	0.45		ug/L	P416877	
		Manganese	18.7		ug/L	P416877	
		Molybdenum	0.47	I	ug/L	P416877	
		Nickel	0.51	I	ug/L	P416877	
		Selenium	0.20	U	ug/L	P416877	
		Silver	0.010	U	ug/L	P416877	
		Thallium	0.10	U	ug/L	P416877	
	SM 2340 B-2011	Hardness	87.7		mg/L	P416877	

Sample Location: Upper Little Hatchet at Airport Field **Collection Date/Time: 07/18/2022 11:00**

Field ID: G1NE0949 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342216	DEP SOP: NU-094-1	Color (true)	92		PCU	P416853	
	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P416869	
	EPA 300.0 Rev. 2.1	Chloride	7.9		mg Cl/L	P417207	
		Sulfate	7.4		mg SO4/L	P417210	
	SM 2320 B-2011	Total Alkalinity	62		mg CaCO3/L	P417082	
	SM 2540 C-2011	TDS	110		mg/L	P417297	
	SM 2540 D-2011	TSS	2	U	mg/L	P417286	
	SM 4500-F- C-2011	Fluoride	0.089	I	mg F/L	P417088	
2342218	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P417261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P416991	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.071		mg N/L	P417034	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P416951	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P417157	
2342238	EPA 200.7 Rev. 4.4	Calcium	24.6		mg/L	P416877	
		Iron	670		ug/L	P416877	
		Magnesium	3.85		mg/L	P416877	
		Potassium	1.4		mg/L	P416877	
		Sodium	4.6		mg/L	P416877	
		Strontium	50.5		ug/L	P416877	
		Tin	3.0	U	ug/L	P416877	
		Titanium	4.7		ug/L	P416877	
		Vanadium	2.4	I	ug/L	P416877	
		Zinc	5.0	U	ug/L	P416877	
	EPA 200.8 Rev. 5.4	Aluminum	194		ug/L	P416877	
		Antimony	0.11	I	ug/L	P416877	
		Arsenic	2.36		ug/L	P416877	
		Barium	16.9		ug/L	P416877	
		Beryllium	0.024	I	ug/L	P417350	
		Boron	22.0		ug/L	P416877	
		Cadmium	0.020	U	ug/L	P416877	
		Chromium	0.97	I	ug/L	P416877	
		Cobalt	0.135		ug/L	P416877	
		Copper	0.66	I	ug/L	P417350	
		Lead	0.48		ug/L	P416877	
		Manganese	12.2		ug/L	P416877	
		Molybdenum	0.27	I	ug/L	P416877	
		Nickel	0.50	U	ug/L	P416877	
		Selenium	0.20	U	ug/L	P416877	
		Silver	0.010	U	ug/L	P416877	
		Thallium	0.10	U	ug/L	P416877	
	SM 2340 B-2011	Hardness	77.3		mg/L	P416877	

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

Sample Location: Bivens Arm Lake **Collection Date/Time: 07/18/2022 11:30**

Field ID: 20020097 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342217	DEP SOP: NU-094-1	Color (true)	14		PCU	P416855	
	EPA 180.1 Rev. 2.0	Turbidity	25		NTU	P416869	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P417207	
		Sulfate	11		mg SO4/L	P417210	
	SM 2320 B-2011	Total Alkalinity	56		mg CaCO3/L	P417082	
	SM 2540 C-2011	TDS	102		mg/L	P417298	
	SM 2540 D-2011	TSS	36		mg/L	P417287	
	SM 4500-F- C-2011	Fluoride	0.18		mg F/L	P417088	
2342219	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P417261	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P417278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417034	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P416951	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P417157	
2342239	EPA 200.7 Rev. 4.4	Calcium	27.8		mg/L	P416877	
		Iron	30	U	ug/L	P416877	
		Magnesium	3.47		mg/L	P416877	
		Potassium	2.5		mg/L	P416877	
		Sodium	6.3		mg/L	P416877	
		Strontium	76.0		ug/L	P416877	
		Tin	3.0	U	ug/L	P416877	
		Titanium	1.2	I	ug/L	P416877	
		Vanadium	3.1	I	ug/L	P416877	
		Zinc	5.0	U	ug/L	P416877	
	EPA 200.8 Rev. 5.4	Aluminum	213		ug/L	P416877	
		Antimony	0.42		ug/L	P416877	
		Arsenic	0.72		ug/L	P416877	
		Barium	12.4		ug/L	P416877	
		Beryllium	0.010	U	ug/L	P417350	
		Boron	33.4		ug/L	P416877	
		Cadmium	0.020	U	ug/L	P416877	
		Chromium	0.40	U	ug/L	P416877	
		Cobalt	0.037	I	ug/L	P416877	
		Copper	0.56	I	ug/L	P417350	
		Lead	1.06		ug/L	P416877	
		Manganese	11.9		ug/L	P416877	
		Molybdenum	0.64		ug/L	P416877	
		Nickel	0.50	U	ug/L	P416877	
		Selenium	0.20	U	ug/L	P416877	
		Silver	0.010	U	ug/L	P416877	
		Thallium	0.10	U	ug/L	P416877	
	SM 2340 B-2011	Hardness	83.7		mg/L	P416877	

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

Sample Location: Glen Spring **Collection Date/Time: 07/18/2022 12:50**

Field ID: G1NE0952 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342220	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P416853	
	EPA 180.1 Rev. 2.0	Turbidity	0.20	I	NTU	P416869	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P417208	
		Sulfate	18		mg SO4/L	P417211	
	SM 2320 B-2011	Total Alkalinity	136	A	mg CaCO3/L	P417082	
	SM 2540 C-2011	TDS	209	A	mg/L	P417298	
	SM 2540 D-2011	TSS	2	UA	mg/L	P417287	
	SM 4500-F- C-2011	Fluoride	0.30		mg F/L	P417088	
2342221	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P417122	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P417156	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.4		mg N/L	P417034	
	EPA 365.1 Rev. 2.0	Total-P	0.37		mg P/L	P416951	
	SM 5310 B-2011	Organic Carbon	0.66	I	mg C/L	P417151	

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

Sample Location: Little Hatchet CR 200m Downstream of NE 15th St. **Collection Date/Time: 07/18/2022 13:15**

Field ID: G1NE0950 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2342242	EPA 200.7 Rev. 4.4	Calcium	25.9		mg/L	P416877	
		Iron	1.86E+03		ug/L	P416877	
		Magnesium	2.90		mg/L	P416877	
		Potassium	1.2		mg/L	P416877	
		Sodium	4.1		mg/L	P416877	
		Strontium	49.4		ug/L	P416877	
		Tin	3.0	U	ug/L	P416877	
		Titanium	1.0	I	ug/L	P416877	
		Vanadium	2.0	U	ug/L	P416877	
		Zinc	5.0	U	ug/L	P416877	
	EPA 200.8 Rev. 5.4	Aluminum	106		ug/L	P416877	
		Antimony	0.073	I	ug/L	P416877	
		Arsenic	3.19		ug/L	P416877	
		Barium	16.8		ug/L	P416877	
		Beryllium	0.016	I	ug/L	P417350	
		Boron	20.5		ug/L	P416877	
		Cadmium	0.020	U	ug/L	P416877	
		Chromium	1.8		ug/L	P416877	
		Cobalt	0.538		ug/L	P416877	
		Copper	0.40	U	ug/L	P417350	
		Lead	0.20	U	ug/L	P416877	
		Manganese	77.8		ug/L	P416877	
		Molybdenum	0.87		ug/L	P416877	
		Nickel	1.6	I	ug/L	P416877	
		Selenium	0.20	U	ug/L	P416877	
		Silver	0.010	U	ug/L	P416877	
		Thallium	0.10	U	ug/L	P416877	
	SM 2340 B-2011	Hardness	76.6		mg/L	P416877	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P416853

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P416855

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416869

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416877

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: P416877

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
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417350

Component	Result	Code	Units
Beryllium	0.010	U	ug/L
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417208

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417211

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417122

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417261

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416991

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417156

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417034

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416951

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

Reference Method: SM 2320 B-2011
Batch ID: P417082

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

Reference Method: SM 2540 C-2011
Batch ID: P417297

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P417298

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417286

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417287

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417088

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P417151

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

Reference Method: SM 5310 B-2011
Batch ID: P417157

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: P416853

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

Reference Method: DEP SOP: NU-094-1
Batch ID: P416855

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416869

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	98.8		P	85 - 115
Magnesium	98.6		P	85 - 115
Potassium	98.5		P	85 - 115
Sodium	101		P	85 - 115
Strontium	102		P	85 - 115
Tin	98.8		P	85 - 115
Titanium	101		P	85 - 115
Vanadium	100		P	85 - 115
Zinc	99.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	103		P	85 - 115
Barium	107		P	85 - 115
Boron	98.9		P	85 - 115
Cadmium	99.4		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	101		P	85 - 115
Lead	96.8		P	85 - 115
Manganese	103		P	85 - 115
Molybdenum	98.6		P	85 - 115
Nickel	103		P	85 - 115
Selenium	104		P	85 - 115
Silver	99.1		P	85 - 115
Thallium	100		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Beryllium	98.3		P	85 - 115
Copper	97.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417208

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: P417210

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417211

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416991

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416951

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

Reference Method: SM 2320 B-2011
Batch ID: P417082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P417088

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

Reference Method: SM 5310 B-2011
Batch ID: P417151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342139	Calcium	103		P	80 - 120
2342139	Iron	101	103	P/P	80 - 120
2342139	Magnesium	99.8	103	P/P	80 - 120
2342139	Potassium	99.4	102	P/P	80 - 120
2342139	Sodium	98.5		P	80 - 120
2342139	Strontium	103	105	P/P	80 - 120
2342139	Tin	98.4	102	P/P	80 - 120
2342139	Titanium	97.5	101	P/P	80 - 120
2342139	Vanadium	102	105	P/P	80 - 120
2342139	Zinc	99.8	104	P/P	80 - 120
2342141	Calcium	102		P	80 - 120
2342141	Iron	103		P	80 - 120
2342141	Magnesium	104		P	80 - 120
2342141	Potassium	105		P	80 - 120
2342141	Sodium	105		P	80 - 120
2342141	Strontium	106		P	80 - 120
2342141	Tin	100		P	80 - 120
2342141	Titanium	100		P	80 - 120
2342141	Vanadium	107		P	80 - 120
2342141	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342139	Aluminum	97.7	99.9	P/P	80 - 120
2342139	Antimony	103	104	P/P	80 - 120
2342139	Arsenic	100	102	P/P	80 - 120
2342139	Barium	103	106	P/P	80 - 120
2342139	Boron	98.2	101	P/P	80 - 120
2342139	Cadmium	97.4	100	P/P	80 - 120
2342139	Chromium	102	98.6	P/P	80 - 120
2342139	Cobalt	97.5	97.7	P/P	80 - 120
2342139	Lead	95.1	96.3	P/P	80 - 120
2342139	Manganese	104	110	P/P	80 - 120
2342139	Molybdenum	98.1	98.7	P/P	80 - 120
2342139	Nickel	97.6	96.9	P/P	80 - 120
2342139	Selenium	98.7	99.2	P/P	80 - 120
2342139	Silver	95.9	98.0	P/P	80 - 120
2342139	Thallium	100	102	P/P	80 - 120
2342141	Aluminum	107		P	80 - 120
2342141	Antimony	106		P	80 - 120
2342141	Arsenic	101		P	80 - 120
2342141	Barium	107		P	80 - 120
2342141	Boron	102		P	80 - 120
2342141	Cadmium	104		P	80 - 120
2342141	Chromium	104		P	80 - 120
2342141	Cobalt	98.6		P	80 - 120
2342141	Lead	96.7		P	80 - 120
2342141	Manganese	113		P	80 - 120
2342141	Molybdenum	102		P	80 - 120
2342141	Nickel	100		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342141	Selenium	99.9		P	80 - 120
2342141	Silver	98.0		P	80 - 120
2342141	Thallium	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342140	Beryllium	97.3	98.6	P/P	80 - 120
2342140	Copper	93.8	94.6	P/P	80 - 120
2342143	Beryllium	97.8		P	80 - 120
2342143	Copper	92.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342089	Chloride	95.5		P	90 - 110
2342115	Chloride	93.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342439	Chloride	97.1		P	90 - 110
2342500	Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342089	Sulfate	94.1		P	90 - 110
2342115	Sulfate	93.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342439	Sulfate	96.7		P	90 - 110
2342500	Sulfate	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342221	Ammonia-N	99.6	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417261

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342235	Ammonia-N	97.0	96.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342203	NO2NO3-N	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342218	Total-P	104	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342220	Fluoride	101	100	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342503	Organic Carbon	101	98.1	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342121	Organic Carbon	98.2	97.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P416853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342200	Color (true)	3.79	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P416855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342118	Color (true)	3.76	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342105	Turbidity	2.29	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P416877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342139	Calcium	0.0565	Spike	P	0 - 20
2342139	Iron	1.77	Spike	P	0 - 20
2342139	Magnesium	1.87	Spike	P	0 - 20
2342139	Potassium	1.49	Spike	P	0 - 20
2342139	Sodium	0.336	Spike	P	0 - 20
2342139	Strontium	1.65	Spike	P	0 - 20
2342139	Tin	3.81	Spike	P	0 - 20
2342139	Titanium	3.34	Spike	P	0 - 20
2342139	Vanadium	3.51	Spike	P	0 - 20
2342139	Zinc	3.73	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342139	Aluminum	1.92	Spike	P	0 - 20
2342139	Antimony	1.47	Spike	P	0 - 20
2342139	Arsenic	1.97	Spike	P	0 - 20
2342139	Barium	2.01	Spike	P	0 - 20
2342139	Boron	2.84	Spike	P	0 - 20
2342139	Cadmium	2.96	Spike	P	0 - 20
2342139	Chromium	3.40	Spike	P	0 - 20
2342139	Cobalt	0.267	Spike	P	0 - 20
2342139	Lead	1.27	Spike	P	0 - 20
2342139	Manganese	1.96	Spike	P	0 - 20
2342139	Molybdenum	0.545	Spike	P	0 - 20
2342139	Nickel	0.681	Spike	P	0 - 20
2342139	Selenium	0.501	Spike	P	0 - 20
2342139	Silver	2.16	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P416877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342139	Thallium	1.88	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342140	Beryllium	1.32	Spike	P	0 - 20
2342140	Copper	0.813	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342089	Chloride	0.136	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342439	Chloride	0.618	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342089	Sulfate	0.173	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342439	Sulfate	0.438	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342221	Ammonia-N	3.36	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342235	Ammonia-N	0.757	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342669	Kjeldahl Nitrogen	1.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342232	Kjeldahl Nitrogen	3.29	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343753	Kjeldahl Nitrogen	6.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342203	NO2NO3-N	1.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342218	Total-P	0.272	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P417082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342220	Total Alkalinity	0.278	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342174	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P417298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342220	TDS	2.87	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P417088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342220	Fluoride	0.476	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342503	Organic Carbon	1.59	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P417157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342121	Organic Carbon	0.491	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: A113584
Included Lab Sample IDs: 2342216, 2342217, 2342220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 110
Color (true)	105	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A113588
Included Lab Sample IDs: 2342216, 2342217, 2342220

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: A113662
Included Lab Sample IDs: 2342218, 2342219, 2342221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A113683
Included Lab Sample IDs: 2342216, 2342217, 2342220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.3	99.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A113683
Included Lab Sample IDs: 2342216, 2342217, 2342220

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113685
Included Lab Sample IDs: 2342218, 2342219, 2342221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	99.6	P/P	90 - 110
Total-P	99.6	99.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A113701
Included Lab Sample IDs: 2342221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.9	98.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-2011
Run ID: A113703
Included Lab Sample IDs: 2342218, 2342219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113708
Included Lab Sample IDs: 2342221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.7	97.9	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A113717
Included Lab Sample IDs: 2342238, 2342239, 2342240, 2342241, 2342242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Strontium	106	108	P/P	90 - 110
Tin	104	105	P/P	90 - 110
Titanium	106	107	P/P	90 - 110
Vanadium	105	107	P/P	90 - 110
Zinc	103	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A113719
Included Lab Sample IDs: 2342238, 2342239, 2342240, 2342241, 2342242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.0	98.7	P/P	90 - 110
Antimony	100	102	P/P	90 - 110
Arsenic	99.6	98.9	P/P	90 - 110
Barium	99.2	99.6	P/P	90 - 110
Boron	94.7	97.1	P/P	90 - 110
Cadmium	100	102	P/P	90 - 110
Chromium	98.9	99.6	P/P	90 - 110
Cobalt	97.1	96.6	P/P	90 - 110
Lead	92.5	93.1	P/P	90 - 110
Manganese	99.9	102	P/P	90 - 110
Molybdenum	96.7	96.8	P/P	90 - 110
Nickel	97.6	97.1	P/P	90 - 110
Selenium	99.6	99.7	P/P	90 - 110
Silver	97.6	98.2	P/P	90 - 110
Thallium	96.3	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113720
Included Lab Sample IDs: 2342218

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113720
Included Lab Sample IDs: 2342218

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	99.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A113721
Included Lab Sample IDs: 2342216, 2342217, 2342220

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	99.9	100	P/P	90 - 110
Sulfate	98.4	99.3	P/P	90 - 110
Sulfate	99.3	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113739
Included Lab Sample IDs: 2342218, 2342219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113764
Included Lab Sample IDs: 2342221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113799
Included Lab Sample IDs: 2342219

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A113843
Included Lab Sample IDs: 2342238, 2342239, 2342240, 2342241, 2342242

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	98.8	101	P/P	90 - 110
Copper	94.9	93.8	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	102					3.79	
	Color (true)	103					3.76	
EPA 180.1 Rev. 2.0	Turbidity	97.0					2.29	
EPA 200.7 Rev. 4.4	Calcium	103	103	102				0.0565
	Iron	98.8	101	103	103			1.77
	Magnesium	98.6	99.8	103	104			1.87
	Potassium	98.5	99.4	102	105			1.49
	Sodium	101	98.5	105				0.336
	Strontium	102	103	105	106			1.65
	Tin	98.8	98.4	102	100			3.81
	Titanium	101	97.5	101	100			3.34
	Vanadium	100	102	105	107			3.51
	Zinc	99.2	99.8	104	101			3.73
EPA 200.8 Rev. 5.4	Aluminum	102	97.7	99.9	107			1.92
	Antimony	105	103	104	106			1.47
	Arsenic	103	100	102	101			1.97
	Barium	107	103	106	107			2.01
	Beryllium	98.3	97.3	98.6	97.8			1.32
	Boron	98.9	98.2	101	102			2.84
	Cadmium	99.4	97.4	100	104			2.96
	Chromium	102	102	98.6	104			3.40
	Cobalt	101	97.5	97.7	98.6			0.267
	Copper	97.2	93.8	94.6	92.7			0.813
	Lead	96.8	95.1	96.3	96.7			1.27
	Manganese	103	104	110	113			1.96
	Molybdenum	98.6	98.1	98.7	102			0.545
	Nickel	103	97.6	96.9	100			0.681
	Selenium	104	98.7	99.2	99.9			0.501
	Silver	99.1	95.9	98.0	98.0			2.16
	Thallium	100	100	102	102			1.88
EPA 300.0 Rev. 2.1	Chloride	98.0	95.5	93.7			0.136	
	Chloride	99.0	97.1	95.9			0.618	
	Sulfate	97.4	94.1	93.6			0.173	
	Sulfate	98.4	96.7	96.9			0.438	
EPA 350.1 Rev. 2.0	Ammonia-N	93.4	99.6	103				3.36
	Ammonia-N	93.6	97.0	96.0				0.757
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110						1.28
	Kjeldahl Nitrogen	97.6						3.29
	Kjeldahl Nitrogen	101						6.44
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.6	101				1.24
EPA 365.1 Rev. 2.0	Total-P	102	104	104				0.272
SM 2320 B-2011	Total Alkalinity	99.4					0.278	
SM 2540 C-2011	TDS						6.74	
	TDS						2.87	
SM 4500-F- C-2011	Fluoride	103	101	100				0.476
SM 5310 B-2011	Organic Carbon	97.0	101	98.1				1.59
	Organic Carbon	99.8	98.2	97.6				0.491

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2342216, 2342217, 2342220
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2342216, 2342217, 2342220

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2342238, 2342239, 2342240, 2342241, 2342242
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2342238, 2342239, 2342240, 2342241, 2342242
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2342216, 2342217, 2342220
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2342216, 2342217, 2342220
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2342218, 2342219, 2342221
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2342218, 2342219, 2342221
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2342218, 2342219, 2342221
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2342218, 2342219, 2342221
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2342216, 2342217, 2342220
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2342238, 2342239, 2342240, 2342241, 2342242
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2342216, 2342217, 2342220
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2342216, 2342217, 2342220
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2342216, 2342217, 2342220
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2342218, 2342219, 2342221

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	07/19/2022			07/19/2022 14:41	Samantha L Bates	2342216
	07/19/2022			07/19/2022 14:42	Samantha L Bates	2342220
	07/19/2022			07/19/2022 15:00	Samantha L Bates	2342217
EPA 180.1 Rev. 2.0	07/19/2022			07/19/2022 13:43	Anna M. Plaviak	2342216
	07/19/2022			07/19/2022 13:45	Anna M. Plaviak	2342217
	07/19/2022			07/19/2022 13:46	Anna M. Plaviak	2342220
EPA 200.7 Rev. 4.4	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/27/2022 02:52	McKinley C Carter	2342238
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/27/2022 03:00	McKinley C Carter	2342239
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/27/2022 03:08	McKinley C Carter	2342240
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/27/2022 03:16	McKinley C Carter	2342241
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/27/2022 03:24	McKinley C Carter	2342242
EPA 200.8 Rev. 5.4	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/26/2022 16:32	Emily M Philpot	2342238
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/26/2022 16:41	Emily M Philpot	2342239
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/26/2022 16:50	Emily M Philpot	2342240
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/26/2022 16:59	Emily M Philpot	2342241
	07/19/2022	07/20/2022 09:34	Megan Whitefoot	07/26/2022 17:09	Emily M Philpot	2342242
	07/19/2022	07/29/2022 08:29	Mackenzie Hunt	08/01/2022 19:08	Emily M Philpot	2342238
	07/19/2022	07/29/2022 08:29	Mackenzie Hunt	08/01/2022 19:15	Emily M Philpot	2342239
	07/19/2022	07/29/2022 08:29	Mackenzie Hunt	08/01/2022 19:22	Emily M Philpot	2342240
	07/19/2022	07/29/2022 08:29	Mackenzie Hunt	08/01/2022 19:28	Emily M Philpot	2342241
	07/19/2022	07/29/2022 08:29	Mackenzie Hunt	08/01/2022 19:35	Emily M Philpot	2342242
EPA 300.0 Rev. 2.1	07/19/2022			07/26/2022 16:29	Anna M. Plaviak	2342216
	07/19/2022			07/26/2022 16:41	Anna M. Plaviak	2342217
	07/19/2022			07/26/2022 18:41	Anna M. Plaviak	2342220
EPA 350.1 Rev. 2.0	07/19/2022			07/25/2022 13:31	Judith K. Clark	2342221
	07/19/2022			07/27/2022 13:47	Judith K. Clark	2342218
	07/19/2022			07/27/2022 13:55	Judith K. Clark	2342219
EPA 351.2 Rev. 2.0	07/19/2022	07/25/2022 15:00	Simonne.V. Calhoun	07/26/2022 15:40	Samantha L Bates	2342218
	07/19/2022	07/26/2022 11:30	Simonne.V. Calhoun	07/28/2022 10:54	Samantha L Bates	2342221
	07/19/2022	07/28/2022 16:20	Simonne.V. Calhoun	07/29/2022 11:58	Samantha L Bates	2342219
EPA 353.2 Rev. 2.0	07/19/2022			07/22/2022 11:07	Beverly Y. Sanders	2342218
	07/19/2022			07/22/2022 11:09	Beverly Y. Sanders	2342219
	07/19/2022			07/22/2022 11:45	Beverly Y. Sanders	2342221
EPA 365.1 Rev. 2.0	07/19/2022	07/22/2022 16:03	Adam P Silver	07/25/2022 10:30	James L Waggerby	2342218
	07/19/2022	07/22/2022 16:03	Adam P Silver	07/25/2022 10:39	James L Waggerby	2342219
	07/19/2022	07/22/2022 16:03	Adam P Silver	07/25/2022 10:40	James L Waggerby	2342221
SM 2320 B-2011	07/19/2022			07/23/2022 12:29	Dale L. Simmons	2342220
	07/19/2022			07/23/2022 13:21	Dale L. Simmons	2342216
	07/19/2022			07/23/2022 13:35	Dale L. Simmons	2342217
SM 2340 B-2011	07/19/2022			07/27/2022 02:52	McKinley C Carter	2342238

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2340 B-2011	07/19/2022			07/27/2022 03:00	McKinley C Carter	2342239
	07/19/2022			07/27/2022 03:08	McKinley C Carter	2342240
	07/19/2022			07/27/2022 03:16	McKinley C Carter	2342241
	07/19/2022			07/27/2022 03:24	McKinley C Carter	2342242
SM 2540 C-2011	07/19/2022			07/22/2022 15:32	Yijie Li	2342216, 2342217, 2342220
SM 2540 D-2011	07/19/2022			07/22/2022 15:32	Yijie Li	2342216, 2342217, 2342220
SM 4500-F- C-2011	07/19/2022			07/23/2022 12:17	Dale L. Simmons	2342220
	07/19/2022			07/23/2022 13:21	Dale L. Simmons	2342216
	07/19/2022			07/23/2022 13:35	Dale L. Simmons	2342217
SM 5310 B-2011	07/19/2022			07/23/2022 02:22	Touraj Touran	2342218
	07/19/2022			07/23/2022 02:35	Touraj Touran	2342219
	07/19/2022			07/25/2022 16:45	Khloe J Berg	2342221