

Chemical Analysis Report

NE-DIST-2024-05-29-01

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

Event Description: **Nassau West 2024**
Request ID: **RQ-2024-05-13-07**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 13-JUN-2024 09:57



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: St Marys R AT SR 121 GA Line

Collection Date/Time: 05/28/2024 12:15

Field ID: 19010002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489334	DEP SOP: NU-094-1	Color (true)	420		PCU	P445788	
	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P445790	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P446248	
		Sulfate	0.66		mg SO4/L	P445912	
	SM 2320 B-2011	Total Alkalinity	0.83	I	mg CaCO3/L	P445860	
	SM 2540 C-2015	TDS	78		mg/L	P446296	
	SM 2540 D-2015	TSS	2	I	mg/L	P446162	
2489337	SM 4500-F- C-2011	Fluoride	0.040	I	mg F/L	P445861	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P445936	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P445796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P445978	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P445824	
2489348	SM 5310 B-2014	Organic Carbon	35		mg C/L	P445868	
	EPA 200.7 Rev. 4.4	Calcium	2.71		mg/L	P445826	
		Iron	820		ug/L	P445826	
		Magnesium	1.37		mg/L	P445826	
		Potassium	0.30	U	mg/L	P445826	
		Sodium	3.4		mg/L	P445826	
		Strontium	10.8		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	4.7		ug/L	P445826	
		Vanadium	2.0	U	ug/L	P445826	
		Zinc	5.0	U	ug/L	P445826	
		Aluminum	332		ug/L	P445826	
		Antimony	0.050	U	ug/L	P445826	
		Arsenic	0.36		ug/L	P445826	
		Barium	10.9		ug/L	P445826	
		Beryllium	0.029	I	ug/L	P445826	
		Boron	11.0		ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.40	U	ug/L	P445826	
		Cobalt	0.158		ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	0.54		ug/L	P445826	
		Manganese	7.01		ug/L	P445826	
		Molybdenum	0.33	I	ug/L	P445826	
		Nickel	0.50	U	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	12.4		mg/L	P445826	

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: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The lead result was confirmed in the undigested sample on 06/03/2024.

Sample Location: Daughtery Branch @ CR 125 S.

Collection Date/Time: 05/28/2024 11:50

Field ID: 19010125

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489335	DEP SOP: NU-094-1	Color (true)	530		PCU	P445788	
	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P445790	
	EPA 300.0 Rev. 2.1	Chloride	6.3		mg Cl/L	P446248	
		Sulfate	0.20	U	mg SO4/L	P445912	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P445860	
	SM 2540 C-2015	TDS	81		mg/L	P446296	
	SM 2540 D-2015	TSS	4	I	mg/L	P446162	
	SM 4500-F- C-2011	Fluoride	0.033	I	mg F/L	P445861	
2489338	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P445936	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P445796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P445977	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P445824	
	SM 5310 B-2014	Organic Carbon	38		mg C/L	P445869	
2489349	EPA 200.7 Rev. 4.4	Calcium	2.49		mg/L	P445826	
		Iron	2.60E+03		ug/L	P445826	
		Magnesium	0.69		mg/L	P445826	
		Potassium	0.30	U	mg/L	P445826	
		Sodium	3.5		mg/L	P445826	
		Strontium	10.8		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	1.6	I	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P445826	
		Zinc	17	I	ug/L	P445826	
		Aluminum	707		ug/L	P445826	
		Antimony	0.065	I	ug/L	P445826	
		Arsenic	0.66		ug/L	P445826	
		Barium	13.1		ug/L	P445826	
		Beryllium	0.060		ug/L	P445826	
		Boron	13.2		ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.99	I	ug/L	P445826	
		Cobalt	0.406		ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	1.05		ug/L	P445826	
		Manganese	12.8		ug/L	P445826	
		Molybdenum	0.15	U	ug/L	P445826	
		Nickel	0.86	I	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	9.1		mg/L	P445826	

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: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The lead result was confirmed in the undigested sample on 06/03/2024.

Sample Location: unnamed Branch @ CR 125

Collection Date/Time: 05/28/2024 11:30

Field ID: 19010123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489351	EPA 200.7 Rev. 4.4	Calcium	7.05		mg/L	P445826	
		Iron	1.53E+03		ug/L	P445826	
		Magnesium	2.98		mg/L	P445826	
		Potassium	1.1	I	mg/L	P445826	
		Sodium	5.3		mg/L	P445826	
		Strontium	21.5		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	0.75	I	ug/L	P445826	
		Vanadium	2.0	U	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Zinc	19	I	ug/L	P445826	
		Aluminum	284		ug/L	P445826	
		Antimony	0.050	I	ug/L	P445826	
		Arsenic	1.10		ug/L	P445826	
		Barium	26.2		ug/L	P445826	
		Beryllium	0.023	I	ug/L	P445826	
		Boron	15.9		ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.57	I	ug/L	P445826	
		Cobalt	0.612		ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	0.58		ug/L	P445826	
		Manganese	84.4		ug/L	P445826	
		Molybdenum	0.15	I	ug/L	P445826	
		Nickel	0.58	I	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	29.9		mg/L	P445826	

Ref. Method and Comment:
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Deep CR @ US 90

Collection Date/Time: 05/28/2024 11:00

Field ID: 19010085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489340	DEP SOP: NU-094-1	Color (true)	67	A	PCU	P445788	
	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P445790	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P446248	
		Sulfate	17		mg SO4/L	P445912	
	SM 2320 B-2011	Total Alkalinity	108		mg CaCO3/L	P445860	
	SM 2540 C-2015	TDS	208	A	mg/L	P446296	
	SM 2540 D-2015	TSS	4	IA	mg/L	P446162	
	SM 4500-F- C-2011	Fluoride	0.22		mg F/L	P445861	
2489341	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P445936	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P445795	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.047		mg N/L	P445882	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P445824	
	SM 5310 B-2014	Organic Carbon	12		mg C/L	P445869	
2489353	EPA 200.7 Rev. 4.4	Calcium	31.6		mg/L	P445826	
		Iron	350		ug/L	P445826	
		Magnesium	7.87		mg/L	P445826	
		Potassium	6.7		mg/L	P445826	
		Sodium	28.8		mg/L	P445826	
		Strontium	304		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	0.75	U	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P445826	
		Zinc	20		ug/L	P445826	
		Aluminum	64		ug/L	P445826	
		Antimony	0.25		ug/L	P445826	
		Arsenic	0.65		ug/L	P445826	
		Barium	24.6		ug/L	P445826	
		Beryllium	0.010	U	ug/L	P445826	
		Boron	131		ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.40	U	ug/L	P445826	
		Cobalt	0.410		ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	0.29	I	ug/L	P445826	
		Manganese	110		ug/L	P445826	
		Molybdenum	2.68		ug/L	P445826	
		Nickel	0.95	I	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	111		mg/L	P445826	

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: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Deep CR @ US 90

Collection Date/Time: 05/28/2024 11:06

Field ID: FB05282024

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489336	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P445788	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P445790	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P446248	
		Sulfate	0.20	U	mg SO4/L	P445912	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P445860	
	SM 2540 C-2015	TDS	15	U	mg/L	P446296	
	SM 2540 D-2015	TSS	2	U	mg/L	P446162	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P445861	
2489339	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P445936	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P445796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P445882	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P445824	
	SM 5310 B-2014	Organic Carbon	0.50	U	mg C/L	P445869	
2489350	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P445826	
		Iron	30	U	ug/L	P445826	
		Magnesium	0.040	U	mg/L	P445826	
		Potassium	0.30	U	mg/L	P445826	
		Sodium	0.50	U	mg/L	P445826	
		Strontium	2.0	U	ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	0.75	U	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P445826	
		Zinc	5.0	U	ug/L	P445826	
		Aluminum	5.0	U	ug/L	P445826	
		Antimony	0.050	U	ug/L	P445826	
		Arsenic	0.050	U	ug/L	P445826	
		Barium	0.20	U	ug/L	P445826	
		Beryllium	0.010	U	ug/L	P445826	
		Boron	2.0	U	ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.40	U	ug/L	P445826	
		Cobalt	0.020	U	ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	0.20	U	ug/L	P445826	
		Manganese	0.10	U	ug/L	P445826	
		Molybdenum	0.15	U	ug/L	P445826	
		Nickel	0.50	U	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P445826	

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: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Unnamed Stream @ CR 121

Collection Date/Time: 05/28/2024 10:30

Field ID: 19010127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489352	EPA 200.7 Rev. 4.4	Calcium	8.01		mg/L	P445826	
		Iron	3.87E+03		ug/L	P445826	
		Magnesium	1.07		mg/L	P445826	
		Potassium	0.38	I	mg/L	P445826	
		Sodium	5.9		mg/L	P445826	
		Strontium	21.9		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	1.3	I	ug/L	P445826	
		Vanadium	2.0	U	ug/L	P445826	
		Zinc	16	I	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Aluminum	517		ug/L	P445826	
		Antimony	0.050	U	ug/L	P445826	
		Arsenic	0.93		ug/L	P445826	
		Barium	20.8		ug/L	P445826	
		Beryllium	0.040		ug/L	P445826	
		Boron	20.0		ug/L	P445826	
		Cadmium	0.064	I	ug/L	P445826	
		Chromium	0.80	I	ug/L	P445826	
		Cobalt	0.292		ug/L	P445826	
		Copper	0.58	I	ug/L	P445826	
		Lead	0.75		ug/L	P445826	
		Manganese	21.5		ug/L	P445826	
		Molybdenum	0.15	U	ug/L	P445826	
		Nickel	0.92	I	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	24.4		mg/L	P445826	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The lead result was confirmed in the undigested sample on 06/03/2024.

Sample Location: Unnamed Drain to Brandy Branch at Dillon Rd. Collection Date/Time: 05/28/2024 09:50

Field ID: G4NE0297

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2489354	EPA 200.7 Rev. 4.4	Calcium	5.65		mg/L	P445826	
		Iron	1.55E+03		ug/L	P445826	
		Magnesium	0.99		mg/L	P445826	
		Potassium	0.37	I	mg/L	P445826	
		Sodium	7.1		mg/L	P445826	
		Strontium	27.0		ug/L	P445826	
		Tin	3.0	U	ug/L	P445826	
		Titanium	1.1	I	ug/L	P445826	
		Vanadium	2.0	U	ug/L	P445826	
	EPA 200.8 Rev. 5.4	Zinc	15	I	ug/L	P445826	
		Aluminum	406		ug/L	P445826	
		Antimony	0.059	I	ug/L	P445826	
		Arsenic	0.42		ug/L	P445826	
		Barium	13.4		ug/L	P445826	
		Beryllium	0.031	I	ug/L	P445826	
		Boron	15.3		ug/L	P445826	
		Cadmium	0.020	U	ug/L	P445826	
		Chromium	0.68	I	ug/L	P445826	
		Cobalt	0.210		ug/L	P445826	
		Copper	0.40	U	ug/L	P445826	
		Lead	1.14		ug/L	P445826	
		Manganese	12.9		ug/L	P445826	
		Molybdenum	0.15	U	ug/L	P445826	
		Nickel	1.0	I	ug/L	P445826	
		Selenium	0.20	U	ug/L	P445826	
		Silver	0.010	U	ug/L	P446074	
		Thallium	0.10	U	ug/L	P445826	
	SM 2340 B-2011	Hardness	18.2		mg/L	P445826	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable for one of two spiked samples because of high analyte concentration in the QC sample. The lead result was confirmed in the undigested sample on 06/03/2024.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P445788

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P445790

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P445826

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: P445826

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
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P446074

Component	Result	Code	Units
Silver	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445912

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P446248

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445936

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445795

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445882

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445977

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445978

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445824

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: P445860

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

Reference Method: SM 2540 C-2015
Batch ID: P446296

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P446162

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P445861

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P445868

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

Reference Method: SM 5310 B-2014
Batch ID: P445869

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: P445788

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: P445790

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P445826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	80 - 120
Iron	103		P	80 - 120
Magnesium	104		P	80 - 120
Potassium	98.0		P	80 - 120
Sodium	104		P	80 - 120
Strontium	100		P	80 - 120
Tin	99.1		P	80 - 120
Titanium	99.3		P	80 - 120
Vanadium	105		P	80 - 120
Zinc	99.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P445826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	109		P	85 - 115
Arsenic	101		P	85 - 115
Barium	105		P	85 - 115
Beryllium	103		P	85 - 115
Boron	107		P	85 - 115
Cadmium	99.7		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	99.4		P	85 - 115
Copper	94.6		P	85 - 115
Lead	101		P	85 - 115
Manganese	108		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	96.6		P	85 - 115
Selenium	104		P	85 - 115
Thallium	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P446074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	115		P	80 - 120

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P446248

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445795

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445882

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445977

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445978

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: P445824

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P445860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	93 - 103

Reference Method: SM 2540 C-2015
Batch ID: P446296

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

Reference Method: SM 2540 D-2015
Batch ID: P446162

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

Reference Method: SM 4500-F- C-2011
Batch ID: P445861

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	95 - 106

Reference Method: SM 5310 B-2014
Batch ID: P445868

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

Reference Method: SM 5310 B-2014
Batch ID: P445869

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P445826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489268	Calcium	106	107	P/P	80 - 120
2489268	Iron	100	100	P/P	80 - 120
2489268	Magnesium	104	105	P/P	80 - 120
2489268	Potassium	98.6	97.4	P/P	80 - 120
2489268	Sodium	103	102	P/P	80 - 120
2489268	Strontium	98.9	97.4	P/P	80 - 120
2489268	Tin	98.7	101	P/P	80 - 120
2489268	Titanium	99.0	105	P/P	80 - 120
2489268	Vanadium	106	108	P/P	80 - 120
2489268	Zinc	103	99.3	P/P	80 - 120
2489379	Calcium	102		P	80 - 120
2489379	Iron	103		P	80 - 120
2489379	Magnesium	99.2		P	80 - 120
2489379	Potassium	97.1		P	80 - 120
2489379	Sodium	101		P	80 - 120
2489379	Strontium	98.5		P	80 - 120
2489379	Tin	99.9		P	80 - 120
2489379	Titanium	101		P	80 - 120
2489379	Vanadium	109		P	80 - 120
2489379	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P445826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489268	Aluminum	102	98.2	P/P	80 - 120
2489268	Antimony	108	104	P/P	80 - 120
2489268	Arsenic	98.8	96.1	P/P	80 - 120
2489268	Barium	104	100	P/P	80 - 120
2489268	Beryllium	104	105	P/P	80 - 120
2489268	Boron	109	103	P/P	80 - 120
2489268	Cadmium	98.7	96.4	P/P	80 - 120
2489268	Chromium	102	99.0	P/P	80 - 120
2489268	Cobalt	99.1	95.9	P/P	80 - 120
2489268	Copper	96.5	93.3	P/P	80 - 120
2489268	Lead	100	98.3	P/P	80 - 120
2489268	Molybdenum	101	97.3	P/P	80 - 120
2489268	Nickel	97.9	94.6	P/P	80 - 120
2489268	Selenium	102	102	P/P	80 - 120
2489268	Thallium	99.4	98.3	P/P	80 - 120
2489379	Aluminum	96.8		P	80 - 120
2489379	Antimony	105		P	80 - 120
2489379	Arsenic	97.4		P	80 - 120
2489379	Barium	99.5		P	80 - 120
2489379	Beryllium	97.4		P	80 - 120
2489379	Boron	101		P	80 - 120
2489379	Cadmium	94.4		P	80 - 120
2489379	Chromium	101		P	80 - 120
2489379	Cobalt	94.0		P	80 - 120
2489379	Copper	89.7		P	80 - 120
2489379	Lead	97.1		P	80 - 120
2489379	Manganese	100		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P445826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489379	Molybdenum	96.6		P	80 - 120
2489379	Nickel	91.5		P	80 - 120
2489379	Selenium	100		P	80 - 120
2489379	Thallium	95.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P446074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2490576	Silver	111	110	P/P	80 - 120
2491054	Silver	110		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489362	Sulfate	95.5		P	90 - 110
2489519	Sulfate	93.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P446248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489362	Chloride	101		P	90 - 110
2489625	Chloride	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489341	Ammonia-N	98.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489341	Kjeldahl Nitrogen	97.8	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489364	Kjeldahl Nitrogen	95.2	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489292	NO2NO3-N	100	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489047	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489580	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489319	Total-P	106	106	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P445861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489363	Fluoride	102	102	P/P	95 - 107

Reference Method: SM 5310 B-2014
Batch ID: P445868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489219	Organic Carbon	99.5	97.6	P/P	85 - 115

Reference Method: SM 5310 B-2014
Batch ID: P445869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2489338	Organic Carbon	99.2	99.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P445788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489340	Color (true)	2.40	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P445790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489262	Turbidity	0.626	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P445826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489268	Calcium	0.0411	Spike	P	0 - 20
2489268	Iron	0.0865	Spike	P	0 - 20
2489268	Magnesium	0.497	Spike	P	0 - 20
2489268	Potassium	1.03	Spike	P	0 - 20
2489268	Sodium	0.290	Spike	P	0 - 20
2489268	Strontium	1.49	Spike	P	0 - 20
2489268	Tin	2.19	Spike	P	0 - 20
2489268	Titanium	5.44	Spike	P	0 - 20
2489268	Vanadium	1.58	Spike	P	0 - 20
2489268	Zinc	3.73	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P445826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489268	Aluminum	2.94	Spike	P	0 - 20
2489268	Antimony	3.87	Spike	P	0 - 20
2489268	Arsenic	2.79	Spike	P	0 - 20
2489268	Barium	3.09	Spike	P	0 - 20
2489268	Beryllium	1.26	Spike	P	0 - 20
2489268	Boron	4.79	Spike	P	0 - 20
2489268	Cadmium	2.39	Spike	P	0 - 20
2489268	Chromium	2.60	Spike	P	0 - 20
2489268	Cobalt	3.25	Spike	P	0 - 20
2489268	Copper	3.40	Spike	P	0 - 20
2489268	Lead	2.07	Spike	P	0 - 20
2489268	Manganese	3.49	Spike	P	0 - 20
2489268	Molybdenum	3.63	Spike	P	0 - 20
2489268	Nickel	3.42	Spike	P	0 - 20
2489268	Selenium	0.361	Spike	P	0 - 20
2489268	Thallium	1.06	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P446074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2490576	Silver	0.870	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P445912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489362	Sulfate	2.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P446248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489362	Chloride	1.63	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489341	Ammonia-N	0.120	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489341	Kjeldahl Nitrogen	7.59	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489364	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489292	NO2NO3-N	0.945	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489047	NO2NO3-N	0.494	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489580	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489319	Total-P	0.165	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P445860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489363	Total Alkalinity	0.131	Sample	P	0 - 4.1

Reference Method: SM 2540 C-2015
Batch ID: P446296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489340	TDS	9.11	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P445861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489363	Fluoride	0.483	Spike	P	0 - 1.7

Reference Method: SM 5310 B-2014
Batch ID: P445868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489219	Organic Carbon	1.16	Spike	P	0 - 15

Reference Method: SM 5310 B-2014
Batch ID: P445869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2489338	Organic Carbon	0.372	Spike	P	0 - 15

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125345

Included Lab Sample IDs: 2489348, 2489349, 2489350, 2489351, 2489352, 2489353, 2489354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	102	P/P	90 - 110
Aluminum	102	98.8	P/P	90 - 110
Aluminum	98.8	102	P/P	90 - 110
Antimony	102	105	P/P	90 - 110
Antimony	106	106	P/P	90 - 110
Antimony	106	102	P/P	90 - 110
Arsenic	96.3	97.4	P/P	90 - 110
Arsenic	98.5	99.4	P/P	90 - 110
Arsenic	99.4	96.3	P/P	90 - 110
Barium	101	102	P/P	90 - 110
Barium	102	99.3	P/P	90 - 110
Barium	99.3	102	P/P	90 - 110
Beryllium	95.0	95.6	P/P	90 - 110
Beryllium	98.3	95.0	P/P	90 - 110
Beryllium	99.1	98.3	P/P	90 - 110
Boron	103	103	P/P	90 - 110
Boron	103	98.9	P/P	90 - 110
Boron	98.9	104	P/P	90 - 110
Cadmium	97.0	99.3	P/P	90 - 110
Cadmium	99.2	100	P/P	90 - 110
Cadmium	100	97.0	P/P	90 - 110
Chromium	100	96.6	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Chromium	96.6	102	P/P	90 - 110
Cobalt	94.7	98.1	P/P	90 - 110
Cobalt	97.8	94.7	P/P	90 - 110
Cobalt	98.6	97.8	P/P	90 - 110
Copper	93.0	95.7	P/P	90 - 110
Copper	95.8	97.1	P/P	90 - 110
Copper	97.1	93.0	P/P	90 - 110
Lead	101	97.4	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Lead	97.4	101	P/P	90 - 110
Manganese	101	106	P/P	90 - 110
Manganese	104	101	P/P	90 - 110
Manganese	105	104	P/P	90 - 110
Molybdenum	95.5	98.9	P/P	90 - 110
Molybdenum	98.3	95.5	P/P	90 - 110
Molybdenum	99.1	98.3	P/P	90 - 110
Nickel	93.4	96.4	P/P	90 - 110
Nickel	97.0	93.4	P/P	90 - 110
Nickel	97.4	97.0	P/P	90 - 110
Selenium	102	104	P/P	90 - 110
Selenium	105	105	P/P	90 - 110
Selenium	105	102	P/P	90 - 110
Thallium	103	103	P/P	90 - 110
Thallium	103	99.3	P/P	90 - 110
Thallium	99.3	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A125894

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	94.6	98.7	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A125900

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A125901

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.0	97.5	P/P	95 - 105
Turbidity	97.5	98.0	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A125926

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	97.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A125926

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	105	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A125928

Included Lab Sample IDs: 2489337, 2489338, 2489339, 2489341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	121	P/P	85 - 115
Organic Carbon	95.8	95.4	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125932

Included Lab Sample IDs: 2489339, 2489341

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125933

Included Lab Sample IDs: 2489341

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125935

Included Lab Sample IDs: 2489337, 2489338, 2489339

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125939

Included Lab Sample IDs: 2489337, 2489338, 2489339

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.0	P/P	90 - 110
Kjeldahl Nitrogen	98.8	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A125942

Included Lab Sample IDs: 2489348, 2489349, 2489350, 2489351, 2489352, 2489353, 2489354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Calcium	99.9	101	P/P	95 - 105
Iron	99.0	98.2	P/P	90 - 110
Iron	99.4	97.9	P/P	95 - 105
Magnesium	100	99.3	P/P	90 - 110
Magnesium	101	99.1	P/P	95 - 105
Potassium	101	101	P/P	90 - 110
Potassium	97.3	99.9	P/P	95 - 105
Sodium	102	102	P/P	90 - 110
Sodium	99.8	101	P/P	95 - 105
Strontium	101	102	P/P	90 - 110
Strontium	101	101	P/P	95 - 105
Tin	100	101	P/P	95 - 105
Tin	102	101	P/P	90 - 110
Titanium	98.8	99.6	P/P	95 - 105
Titanium	99.5	99.2	P/P	90 - 110
Vanadium	101	104	P/P	95 - 105
Vanadium	105	105	P/P	90 - 110
Zinc	100	103	P/P	95 - 105
Zinc	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125951

Included Lab Sample IDs: 2489337, 2489338, 2489339, 2489341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125961

Included Lab Sample IDs: 2489341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125968

Included Lab Sample IDs: 2489337, 2489338

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A126011

Included Lab Sample IDs: 2489334, 2489335, 2489336, 2489340

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A126066

Included Lab Sample IDs: 2489350

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A126080

Included Lab Sample IDs: 2489348, 2489349, 2489351, 2489352, 2489353, 2489354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	102	102	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)	101					2.40		
EPA 180.1 Rev. 2.0	Turbidity	100					0.626		
EPA 200.7 Rev. 4.4	Calcium	107	106	107	102			0.0411	
	Iron	103	100	100	103			0.0865	
	Magnesium	104	104	105	99.2			0.497	
	Potassium	98.0	98.6	97.4	97.1			1.03	
	Sodium	104	103	102	101			0.290	
	Strontium	100	98.9	97.4	98.5			1.49	
	Tin	99.1	98.7	101	99.9			2.19	
	Titanium	99.3	99.0	105	101			5.44	
	Vanadium	105	106	108	109			1.58	
	Zinc	99.7	103	99.3	101			3.73	
EPA 200.8 Rev. 5.4	Aluminum	103	102	98.2	96.8			2.94	
	Antimony	109	108	104	105			3.87	
	Arsenic	101	98.8	96.1	97.4			2.79	
	Barium	105	104	100	99.5			3.09	
	Beryllium	103	104	105	97.4			1.26	
	Boron	107	109	103	101			4.79	
	Cadmium	99.7	98.7	96.4	94.4			2.39	
	Chromium	102	102	99.0	101			2.60	
	Cobalt	99.4	99.1	95.9	94.0			3.25	
	Copper	94.6	96.5	93.3	89.7			3.40	
	Lead	101	100	98.3	97.1			2.07	
	Manganese	108	100					3.49	
	Molybdenum	101	101	97.3	96.6			3.63	
	Nickel	96.6	97.9	94.6	91.5			3.42	
	Selenium	104	102	102	100			0.361	
	Silver	115	110	111	110			0.870	
	Thallium	98.2	99.4	98.3	95.6			1.06	
	EPA 300.0 Rev. 2.1	Chloride	104	101	104			1.63	
		Sulfate	95.0	95.5	93.4			2.22	
	EPA 350.1 Rev. 2.0	Ammonia-N	94.6	98.4	98.2				0.120
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	97.8	109				7.59	
	Kjeldahl Nitrogen	96.2	95.2	98.9				2.73	
EPA 353.2 Rev. 2.0	NO2NO3-N	103	100	102				0.945	
	NO2NO3-N	102	102	101				0.494	
	NO2NO3-N	102	100	99.5				1.00	
EPA 365.1 Rev. 2.0	Total-P	101	106	106				0.165	
SM 2320 B-2011	Total Alkalinity	98.1					0.131		
SM 2540 C-2015	TDS	101					9.11		
SM 2540 D-2015	TSS	96.0							
SM 4500-F- C-2011	Fluoride	102	102	102				0.483	
SM 5310 B-2014	Organic Carbon	97.4	99.5	97.6				1.16	
	Organic Carbon	98.2	99.2	99.9				0.372	

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2489334, 2489335, 2489336, 2489340
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2489334, 2489335, 2489336, 2489340
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2489348, 2489349, 2489350, 2489351, 2489352, 2489353, 2489354

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2489348, 2489349, 2489350, 2489351, 2489352, 2489353, 2489354
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2489334, 2489335, 2489336, 2489340
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2489334, 2489335, 2489336, 2489340
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2489337, 2489338, 2489339, 2489341
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2489337, 2489338, 2489339, 2489341
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2489337, 2489338, 2489339, 2489341
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2489337, 2489338, 2489339, 2489341
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2489334, 2489335, 2489336, 2489340
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2489348, 2489349, 2489350, 2489351, 2489352, 2489353, 2489354
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2489334, 2489335, 2489336, 2489340
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2489334, 2489335, 2489336, 2489340
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2489334, 2489335, 2489336, 2489340
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2489337, 2489338, 2489339, 2489341

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	05/29/2024			05/29/2024 14:26	Jessica K Wilks	2489336
	05/29/2024			05/29/2024 14:27	Jessica K Wilks	2489340
	05/29/2024			05/29/2024 14:34	Jessica K Wilks	2489334
	05/29/2024			05/29/2024 14:35	Jessica K Wilks	2489335
EPA 180.1 Rev. 2.0	05/29/2024			05/29/2024 14:05	Samantha L Bates	2489334
	05/29/2024			05/29/2024 14:08	Samantha L Bates	2489335, 2489336
	05/29/2024			05/29/2024 14:09	Samantha L Bates	2489340
EPA 200.7 Rev. 4.4	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 14:04	Chase Roberts	2489350
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:04	Chase Roberts	2489348
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:10	Chase Roberts	2489349
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:16	Chase Roberts	2489351
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:23	Chase Roberts	2489352
EPA 200.8 Rev. 5.4	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:31	Chase Roberts	2489353
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:39	Chase Roberts	2489354
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 17:46	McKinley C Carter	2489350
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 20:07	McKinley C Carter	2489348
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 20:16	McKinley C Carter	2489349
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 20:25	McKinley C Carter	2489351
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 21:18	McKinley C Carter	2489352
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 21:27	McKinley C Carter	2489353
	05/29/2024	05/30/2024 12:20	George D Taylor	05/31/2024 21:36	McKinley C Carter	2489354
	05/29/2024	06/05/2024 13:35	George D Taylor	06/07/2024 19:50	McKinley C Carter	2489350
	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 19:42	Emily M Philpot	2489348
	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 19:51	Emily M Philpot	2489349
	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 20:01	Emily M Philpot	2489351
	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 20:10	Emily M Philpot	2489352
	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 20:20	Emily M Philpot	2489353
EPA 300.0 Rev. 2.1	05/29/2024	06/05/2024 13:35	George D Taylor	06/10/2024 20:29	Emily M Philpot	2489354
	05/29/2024			05/30/2024 14:38	James L Waggeberby	2489334
	05/29/2024			05/30/2024 14:53	James L Waggeberby	2489335
	05/29/2024			05/30/2024 15:08	James L Waggeberby	2489336
	05/29/2024			05/30/2024 15:23	James L Waggeberby	2489340
	05/29/2024			06/07/2024 15:08	James L Waggeberby	2489334
	05/29/2024			06/07/2024 15:23	James L Waggeberby	2489335
EPA 350.1 Rev. 2.0	05/29/2024			06/07/2024 15:38	James L Waggeberby	2489336
	05/29/2024			06/07/2024 15:53	James L Waggeberby	2489340
	05/29/2024			06/03/2024 12:00	Khloe J Berg	2489337
	05/29/2024			06/03/2024 12:01	Khloe J Berg	2489338
	05/29/2024			06/03/2024 12:02	Khloe J Berg	2489339
	05/29/2024			06/03/2024 12:04	Khloe J Berg	2489341

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 351.2 Rev. 2.0	05/29/2024	05/30/2024 10:31	Samantha L Bates	05/31/2024 13:28	Robyn Blevins	2489337
	05/29/2024	05/30/2024 10:31	Samantha L Bates	05/31/2024 13:33	Robyn Blevins	2489338
	05/29/2024	05/30/2024 10:31	Samantha L Bates	05/31/2024 13:34	Robyn Blevins	2489339
	05/29/2024	05/30/2024 10:31	Samantha L Bates	06/03/2024 13:28	Samantha L Bates	2489341
EPA 353.2 Rev. 2.0	05/29/2024			05/30/2024 16:49	Fadila Guebre	2489341
	05/29/2024			05/30/2024 16:50	Fadila Guebre	2489339
	05/29/2024			06/03/2024 14:58	Fadila Guebre	2489338
	05/29/2024			06/03/2024 15:13	Fadila Guebre	2489337
EPA 365.1 Rev. 2.0	05/29/2024	05/30/2024 15:10	Josephine W Gitau	05/31/2024 10:08	James L Waggeberby	2489341
	05/29/2024	05/30/2024 15:10	Josephine W Gitau	05/31/2024 11:40	James L Waggeberby	2489339
	05/29/2024	05/30/2024 15:10	Josephine W Gitau	05/31/2024 11:45	James L Waggeberby	2489337
	05/29/2024	05/30/2024 15:10	Josephine W Gitau	05/31/2024 11:46	James L Waggeberby	2489338
SM 2320 B-2011	05/29/2024			05/30/2024 20:35	Adam P Silver	2489334
	05/29/2024			05/30/2024 20:42	Adam P Silver	2489335
	05/29/2024			05/30/2024 20:51	Adam P Silver	2489336
	05/29/2024			05/30/2024 21:03	Adam P Silver	2489340
SM 2340 B-2011	05/29/2024			05/31/2024 14:04	Chase Roberts	2489350
	05/29/2024			05/31/2024 17:04	Chase Roberts	2489348
	05/29/2024			05/31/2024 17:10	Chase Roberts	2489349
	05/29/2024			05/31/2024 17:16	Chase Roberts	2489351
	05/29/2024			05/31/2024 17:23	Chase Roberts	2489352
	05/29/2024			05/31/2024 17:31	Chase Roberts	2489353
	05/29/2024			05/31/2024 17:39	Chase Roberts	2489354
SM 2540 C-2015	05/29/2024			06/03/2024 15:24	Yijie Li	2489334, 2489335, 2489336, 2489340
SM 2540 D-2015	05/29/2024			06/03/2024 15:24	Yijie Li	2489334, 2489335, 2489336, 2489340
SM 4500-F- C-2011	05/29/2024			05/30/2024 20:35	Adam P Silver	2489334
	05/29/2024			05/30/2024 20:42	Adam P Silver	2489335
	05/29/2024			05/30/2024 20:51	Adam P Silver	2489336
	05/29/2024			05/30/2024 21:03	Adam P Silver	2489340
SM 5310 B-2014	05/29/2024			05/30/2024 23:02	Jessica K Wilks	2489337
	05/29/2024			05/31/2024 00:23	Jessica K Wilks	2489338
	05/29/2024			05/31/2024 01:07	Jessica K Wilks	2489339
	05/29/2024			05/31/2024 01:23	Jessica K Wilks	2489341