

Chemical Analysis Report

NE-DIST-2024-04-05-01

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

Event Description: **LSJR NorthEast 1 2024**
Request ID: **RQ-2024-04-08-14**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 25-APR-2024 13:37



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.

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

Sample Location: HOPKINS CR AT FLORIDA BLVD

Collection Date/Time: 04/04/2024 09:35

Field ID: 20030698

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2480289	DEP SOP: NU-094-1	Color (true)	59		PCU	P443853	
	EPA 180.1 Rev. 2.0	Turbidity	6.6	A	NTU	P443861	
	EPA 300.0 Rev. 2.1	Chloride	1.3E+03		mg Cl/L	P444562	
		Sulfate	190		mg SO4/L	P444565	
	SM 2320 B-2011	Total Alkalinity	92		mg CaCO3/L	P444024	
	SM 2540 C-2015	TDS	2.19E+03		mg/L	P444268	
	SM 2540 D-2015	TSS	11		mg/L	P444137	
	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P444026	
2480290	EPA 350.1 Rev. 2.0	Ammonia-N	0.33		mg N/L	P444057	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P444000	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P444123	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P443965	
	SM 5310 B-2014	Organic Carbon	13		mg C/L	P444178	
2480318	EPA 200.7 Rev. 4.4	Calcium	57.5		mg/L	P443947	
		Chromium	1.0	I	ug/L	P443947	
		Iron	620		ug/L	P443947	
		Magnesium	85.2		mg/L	P443947	
		Potassium	27.4		mg/L	P443947	
		Sodium	692		mg/L	P443947	
		Strontium	626		ug/L	P443947	
		Tin	3.0	U	ug/L	P443947	
	EPA 200.8 Rev. 5.4	Titanium	3.8		ug/L	P443947	
		Vanadium	3.2	I	ug/L	P443947	
		Zinc	33		ug/L	P443947	
		Aluminum	259		ug/L	P443947	
		Antimony	0.21		ug/L	P443947	
		Arsenic	1.45		ug/L	P443947	
		Barium	16.2		ug/L	P443947	
		Beryllium	0.010	U	ug/L	P443947	
		Boron	297		ug/L	P443947	
		Cadmium	0.020	U	ug/L	P443947	
		Cobalt	0.083		ug/L	P443947	
		Copper	1.42		ug/L	P443947	
		Lead	0.88		ug/L	P443947	
		Manganese	21.5		ug/L	P443947	
		Molybdenum	0.97		ug/L	P443947	
		Nickel	0.50	U	ug/L	P443947	
		Selenium	0.20	U	ug/L	P443947	
		Silver	0.010	U	ug/L	P443947	
		Thallium	0.10	U	ug/L	P443947	
	SM 2340 B-2011	Hardness	494		mg/L	P443947	

Ref. Method and Comment:

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

Sample Location: HOGPEN CR AT SAN PABLO ROAD

Collection Date/Time: 04/04/2024 09:55

Field ID: 20030696					Matrix: W-SURF-FRH		
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2480291	DEP SOP: NU-094-1	Color (true)	66		PCU	P443853	
	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P443861	
	EPA 300.0 Rev. 2.1	Chloride	250		mg Cl/L	P444562	
		Sulfate	58		mg SO4/L	P444565	
	SM 2320 B-2011	Total Alkalinity	80		mg CaCO3/L	P444024	
	SM 2540 C-2015	TDS	596		mg/L	P444268	
	SM 2540 D-2015	TSS	10	I	mg/L	P444137	
	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P444026	
2480292	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P444057	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P444001	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P444123	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P443965	
	SM 5310 B-2014	Organic Carbon	14		mg C/L	P444178	

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

Sample Location: GREENFIELD END OF BUCANEER DR

Collection Date/Time: 04/04/2024 10:30

Field ID: G2NE1154

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2480319	EPA 200.7 Rev. 4.4	Calcium	214		mg/L	P443945	
		Chromium	3.0	U	ug/L	P443945	
		Iron	670		ug/L	P443945	
		Magnesium	633		mg/L	P443945	
		Potassium	190		mg/L	P443945	
		Sodium	4.43E+03		mg/L	P443945	
		Strontium	3.49E+03		ug/L	P443945	
		Tin	60	U	ug/L	P443945	
		Titanium	12.3		ug/L	P443945	
		Vanadium	6.0	U	ug/L	P443945	
		Zinc	15	U	ug/L	P443945	
	EPA 200.8 Rev. 5.4	Aluminum	899		ug/L	P443945	
		Antimony	0.20	U	ug/L	P443945	
		Arsenic	1.91		ug/L	P443945	
		Barium	16.5		ug/L	P443945	
		Beryllium	0.073	I	ug/L	P443945	
		Boron	1.95E+03		ug/L	P443945	
		Cadmium	0.080	U	ug/L	P443945	
		Cobalt	0.22	I	ug/L	P443945	
		Copper	1.6	U	ug/L	P443945	
		Lead	0.80	U	ug/L	P443945	
		Manganese	28.7		ug/L	P443945	
		Molybdenum	5.9		ug/L	P443945	
		Nickel	5.0	U	ug/L	P443945	
		Selenium	2.0	U	ug/L	P443945	
		Silver	0.040	U	ug/L	P443945	
		Thallium	0.40	U	ug/L	P443945	
	SM 2340 B-2011	Hardness	3.14E+03		mg/L	P443945	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for aluminum, boron and manganese are unavailable because of high analyte concentration in the QC sample.

Sample Location: STJOHNS RIVER AT REDDIE POINT
PRESERVE DOCK

Collection Date/Time: 04/04/2024 11:20

Field ID: G2NE1231

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2480287	DEP SOP: NU-094-1	Color (true)	91	AJ	PCU	P443855	
	EPA 180.1 Rev. 2.0	Turbidity	70		NTU	P443861	
	EPA 300.0 Rev. 2.1	Chloride	4.4E+03		mg Cl/L	P444562	
		Sulfate	630		mg SO4/L	P444565	
	SM 2320 B-2011	Total Alkalinity	76		mg CaCO3/L	P444095	
	SM 2540 C-2015	TDS	7.04E+03		mg/L	P444389	
	SM 2540 D-2015	TSS	183		mg/L	P444289	
2480288	SM 4500-F- C-2011	Fluoride	0.32		mg F/L	P444102	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P443943	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P444144	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P444297	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P444028	
2480317	SM 5310 B-2014	Organic Carbon	12		mg C/L	P444178	
	EPA 200.7 Rev. 4.4	Calcium	125		mg/L	P443945	
		Chromium	7.2	I	ug/L	P443945	
		Iron	4.44E+03		ug/L	P443945	
		Magnesium	314		mg/L	P443945	
		Potassium	90.9		mg/L	P443945	
		Sodium	2.55E+03		mg/L	P443945	
		Strontium	2.06E+03		ug/L	P443945	
		Tin	9.0	U	ug/L	P443945	
		Titanium	40.7		ug/L	P443945	
		Vanadium	8.8	I	ug/L	P443945	
		Zinc	43	I	ug/L	P443945	
	EPA 200.8 Rev. 5.4	Aluminum	3.11E+03		ug/L	P443945	
		Antimony	0.20	U	ug/L	P443945	
		Arsenic	3.05		ug/L	P443945	
		Barium	18.9		ug/L	P443945	
		Beryllium	0.20		ug/L	P443945	
		Boron	982		ug/L	P443945	
		Cadmium	0.080	U	ug/L	P443945	
		Cobalt	0.68	I	ug/L	P443945	
		Copper	3.6		ug/L	P443945	
		Lead	5.7		ug/L	P443945	
		Manganese	108		ug/L	P443945	
		Molybdenum	3.4		ug/L	P443945	
		Nickel	5.0	U	ug/L	P443945	
		Selenium	2.0	U	ug/L	P443945	
		Silver	0.040	U	ug/L	P443945	
		Thallium	0.40	U	ug/L	P443945	
	SM 2340 B-2011	Hardness	1.60E+03		mg/L	P443945	

Field ID: G2NE1231

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
DEP SOP: NU-094-1: The result may be biased high because of turbidity.
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium, strontium and titanium are unavailable because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for aluminum, boron and manganese are unavailable because of high analyte concentration in the QC sample. The aluminum and beryllium result was confirmed on 04/23/2024.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P443853

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P443855

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443861

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443945

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443947

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443947

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444562

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444565

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444057

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444000

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444001

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444144

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444123

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443965

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444028

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: P444024

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

Reference Method: SM 2320 B-2011
Batch ID: P444095

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

Reference Method: SM 2540 C-2015
Batch ID: P444268

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2015
Batch ID: P444389

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P444137

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P444289

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P444026

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2014
Batch ID: P444178

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: P443853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.4		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P443855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	95.6		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443861

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	80 - 120
Chromium	102		P	80 - 120
Iron	104		P	80 - 120
Magnesium	105		P	80 - 120
Potassium	103		P	80 - 120
Sodium	105		P	80 - 120
Strontium	99.9		P	80 - 120
Tin	101		P	80 - 120
Titanium	100		P	80 - 120
Vanadium	106		P	80 - 120
Zinc	109		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Chromium	101		P	85 - 115
Iron	105		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	104		P	85 - 115
Sodium	102		P	85 - 115
Strontium	98.8		P	85 - 115
Tin	100		P	85 - 115
Titanium	100		P	85 - 115
Vanadium	99.2		P	85 - 115
Zinc	107		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	100		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	103		P	85 - 115
Barium	103		P	85 - 115
Beryllium	93.1		P	85 - 115
Boron	105		P	85 - 115
Cadmium	99.3		P	85 - 115
Cobalt	102		P	85 - 115
Copper	100		P	85 - 115
Lead	101		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	99.7		P	85 - 115
Nickel	102		P	85 - 115
Selenium	105		P	80 - 120
Silver	98.2		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.8		P	85 - 115
Antimony	96.5		P	85 - 115
Arsenic	104		P	85 - 115
Barium	96.0		P	85 - 115
Beryllium	96.2		P	85 - 115
Boron	103		P	85 - 115
Cadmium	97.0		P	85 - 115
Cobalt	102		P	85 - 115
Copper	99.3		P	85 - 115
Lead	97.3		P	85 - 115
Manganese	96.7		P	85 - 115
Molybdenum	94.9		P	85 - 115
Nickel	95.5		P	85 - 115
Selenium	95.5		P	85 - 115
Silver	96.0		P	85 - 115
Thallium	93.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444562

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444565

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444057

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444000

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444001

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444123

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: P444297

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: P443965

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444028

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P444024

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P444095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P444268

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	98.0		P	85 - 115

Reference Method: SM 2540 C-2015
Batch ID: P444389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	92.8		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P444137

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

Reference Method: SM 2540 D-2015
Batch ID: P444289

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	99.2		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P444026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P444178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480317	Chromium	98.8	98.8	P/P	70 - 130
2480317	Iron	102		P	70 - 130
2480317	Tin	92.7	91.5	P/P	70 - 130
2480317	Vanadium	108	108	P/P	70 - 130
2480317	Zinc	107	108	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480018	Calcium	103		P	80 - 120
2480018	Chromium	102	101	P/P	80 - 120
2480018	Iron	108	107	P/P	80 - 120
2480018	Magnesium	104		P	80 - 120
2480018	Potassium	101	101	P/P	80 - 120
2480018	Sodium	103		P	80 - 120
2480018	Strontium	97.5	96.7	P/P	80 - 120
2480018	Tin	99.7	99.6	P/P	80 - 120
2480018	Titanium	103	102	P/P	80 - 120
2480018	Vanadium	103	102	P/P	80 - 120
2480018	Zinc	111	110	P/P	80 - 120
2480248	Calcium	101		P	80 - 120
2480248	Chromium	102		P	80 - 120
2480248	Iron	107		P	80 - 120
2480248	Magnesium	102		P	80 - 120
2480248	Potassium	98.7		P	80 - 120
2480248	Sodium	101		P	80 - 120
2480248	Strontium	97.5		P	80 - 120
2480248	Tin	100		P	80 - 120
2480248	Titanium	101		P	80 - 120
2480248	Vanadium	104		P	80 - 120
2480248	Zinc	109		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480317	Antimony	89.6	89.1	P/P	70 - 130
2480317	Arsenic	108	107	P/P	70 - 130
2480317	Barium	103	103	P/P	70 - 130
2480317	Beryllium	93.9	92.0	P/P	70 - 130
2480317	Cadmium	98.6	96.1	P/P	70 - 130
2480317	Cobalt	94.6	97.6	P/P	70 - 130
2480317	Copper	90.8	90.4	P/P	70 - 130
2480317	Lead	103	103	P/P	70 - 130
2480317	Molybdenum	104	106	P/P	70 - 130
2480317	Nickel	98.1	102	P/P	70 - 130
2480317	Selenium	109	110	P/P	70 - 130
2480317	Silver	89.9	90.5	P/P	70 - 130
2480317	Thallium	103	103	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480018	Aluminum	94.3	94.2	P/P	80 - 120
2480018	Antimony	96.9	97.4	P/P	80 - 120
2480018	Arsenic	104	104	P/P	80 - 120
2480018	Barium	95.7	97.0	P/P	80 - 120
2480018	Beryllium	91.1	93.7	P/P	80 - 120
2480018	Boron	100	101	P/P	80 - 120
2480018	Cadmium	98.1	94.9	P/P	80 - 120
2480018	Cobalt	100	99.3	P/P	80 - 120
2480018	Copper	99.0	99.1	P/P	80 - 120
2480018	Lead	98.4	98.7	P/P	80 - 120
2480018	Manganese	96.1	95.7	P/P	80 - 120
2480018	Molybdenum	96.3	97.7	P/P	80 - 120
2480018	Nickel	92.4	92.7	P/P	80 - 120
2480018	Selenium	93.1	94.5	P/P	80 - 120
2480018	Silver	93.6	93.6	P/P	80 - 120
2480018	Thallium	97.1	98.3	P/P	80 - 120
2480248	Aluminum	97.5		P	80 - 120
2480248	Antimony	105		P	80 - 120
2480248	Arsenic	105		P	80 - 120
2480248	Barium	97.3		P	80 - 120
2480248	Beryllium	101		P	80 - 120
2480248	Boron	106		P	80 - 120
2480248	Cadmium	95.8		P	80 - 120
2480248	Cobalt	99.9		P	80 - 120
2480248	Copper	98.0		P	80 - 120
2480248	Lead	98.2		P	80 - 120
2480248	Manganese	103		P	80 - 120
2480248	Molybdenum	96.0		P	80 - 120
2480248	Nickel	93.3		P	80 - 120
2480248	Selenium	93.6		P	80 - 120
2480248	Silver	95.6		P	80 - 120
2480248	Thallium	98.0		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2481793	Chloride	105		P	90 - 110
2481860	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2481793	Sulfate	105		P	90 - 110
2481860	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480080	Ammonia-N	95.6	96.4	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480229	Ammonia-N	95.0	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480267	Kjeldahl Nitrogen	101	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480335	Kjeldahl Nitrogen	91.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480655	Kjeldahl Nitrogen	90.2	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480226	NO2NO3-N	94.0	92.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480080	NO2NO3-N	94.0	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480305	Total-P	110	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480527	Total-P	102	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P444026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480369	Fluoride	105	104	P/P	94 - 106

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478055	Fluoride	101	103	P/P	94 - 106

Reference Method: SM 5310 B-2014
Batch ID: P444178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480267	Organic Carbon	97.0	98.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P443853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480333	Color (true)	7.54	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P443855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480287	Color (true)	1.33	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P443861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480289	Turbidity	10.9	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480317	Calcium	0.0335	Spike	P	0 - 20
2480317	Chromium	0.00913	Spike	P	0 - 20
2480317	Iron	0.0466	Spike	P	0 - 20
2480317	Magnesium	0.196	Spike	P	0 - 20
2480317	Potassium	0.0430	Spike	P	0 - 20
2480317	Sodium	0.611	Spike	P	0 - 20
2480317	Strontium	0.951	Spike	P	0 - 20
2480317	Tin	1.31	Spike	P	0 - 20
2480317	Titanium	0.0568	Spike	P	0 - 20
2480317	Vanadium	0.197	Spike	P	0 - 20
2480317	Zinc	1.35	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480018	Calcium	0.627	Spike	P	0 - 20
2480018	Chromium	0.652	Spike	P	0 - 20
2480018	Iron	0.588	Spike	P	0 - 20
2480018	Magnesium	0.0961	Spike	P	0 - 20
2480018	Potassium	0.410	Spike	P	0 - 20
2480018	Sodium	0.00965	Spike	P	0 - 20
2480018	Strontium	0.742	Spike	P	0 - 20
2480018	Tin	0.113	Spike	P	0 - 20
2480018	Titanium	0.992	Spike	P	0 - 20
2480018	Vanadium	1.58	Spike	P	0 - 20
2480018	Zinc	0.702	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480317	Aluminum	6.36	Spike	P	0 - 20
2480317	Antimony	0.514	Spike	P	0 - 20
2480317	Arsenic	1.30	Spike	P	0 - 20
2480317	Barium	0.562	Spike	P	0 - 20
2480317	Beryllium	1.68	Spike	P	0 - 20
2480317	Boron	1.35	Spike	P	0 - 20
2480317	Cadmium	2.52	Spike	P	0 - 20
2480317	Cobalt	3.07	Spike	P	0 - 20
2480317	Copper	0.458	Spike	P	0 - 20
2480317	Lead	0.187	Spike	P	0 - 20
2480317	Manganese	2.64	Spike	P	0 - 20
2480317	Molybdenum	1.30	Spike	P	0 - 20
2480317	Nickel	3.96	Spike	P	0 - 20
2480317	Selenium	1.27	Spike	P	0 - 20
2480317	Silver	0.705	Spike	P	0 - 20
2480317	Thallium	0.498	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480018	Aluminum	0.127	Spike	P	0 - 20
2480018	Antimony	0.518	Spike	P	0 - 20
2480018	Arsenic	0.282	Spike	P	0 - 20
2480018	Barium	1.14	Spike	P	0 - 20
2480018	Beryllium	2.79	Spike	P	0 - 20
2480018	Boron	0.872	Spike	P	0 - 20
2480018	Cadmium	3.30	Spike	P	0 - 20
2480018	Cobalt	0.655	Spike	P	0 - 20
2480018	Copper	0.0778	Spike	P	0 - 20
2480018	Lead	0.271	Spike	P	0 - 20
2480018	Manganese	0.367	Spike	P	0 - 20
2480018	Molybdenum	1.48	Spike	P	0 - 20
2480018	Nickel	0.324	Spike	P	0 - 20
2480018	Selenium	1.45	Spike	P	0 - 20
2480018	Silver	0.0168	Spike	P	0 - 20
2480018	Thallium	1.14	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2481793	Chloride	0.242	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P444565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2481793	Sulfate	0.962	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480080	Ammonia-N	0.545	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480229	Ammonia-N	0.927	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480267	Kjeldahl Nitrogen	3.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480335	Kjeldahl Nitrogen	5.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480655	Kjeldahl Nitrogen	7.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480226	NO2NO3-N	2.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480080	NO2NO3-N	1.02	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480305	Total-P	0.777	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480527	Total-P	0.302	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P444024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480369	Total Alkalinity	0.824	Sample	P	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P444095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480654	Total Alkalinity	0.0380	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P444268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480221	TDS	6.09	Sample	P	0 - 10

Reference Method: SM 2540 C-2015
Batch ID: P444389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479961	TDS	3.93	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P444026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480369	Fluoride	0.551	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P444102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478055	Fluoride	0.967	Spike	P	0 - 1.9

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2014
Batch ID: P444178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480267	Organic Carbon	0.943	Spike	P	0 - 15

* 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: A125194
Included Lab Sample IDs: 2480289, 2480291, 2480293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.1	96.7	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A125195
Included Lab Sample IDs: 2480287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.4	98.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A125198
Included Lab Sample IDs: 2480287, 2480289, 2480291, 2480293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A125220
Included Lab Sample IDs: 2480288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	97.7	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A125245
Included Lab Sample IDs: 2480289, 2480291, 2480293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.7	97.7	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A125245
Included Lab Sample IDs: 2480289, 2480291, 2480293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	107	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A125249
Included Lab Sample IDs: 2480318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	92.7	92.3	P/P	90 - 110
Barium	92.3	92.4	P/P	90 - 110
Beryllium	93.4	91.5	P/P	90 - 110
Boron	97.9	98.5	P/P	90 - 110
Cadmium	92.4	93.7	P/P	90 - 110
Lead	95.5	94.9	P/P	90 - 110
Molybdenum	91.8	92.6	P/P	90 - 110
Nickel	92.5	91.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125249

Included Lab Sample IDs: 2480318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	92.8	91.4	P/P	90 - 110
Silver	95.5	96.8	P/P	90 - 110
Thallium	96.0	95.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125261

Included Lab Sample IDs: 2480290, 2480292, 2480294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	97.6	P/P	90 - 110
Ammonia-N	97.8	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125272

Included Lab Sample IDs: 2480290, 2480292, 2480294

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A125273

Included Lab Sample IDs: 2480317, 2480318, 2480319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	102	P/P	90 - 110
Calcium	103	101	P/P	90 - 110
Chromium	103	101	P/P	90 - 110
Chromium	104	104	P/P	90 - 110
Chromium	104	104	P/P	90 - 110
Iron	103	102	P/P	90 - 110
Iron	103	101	P/P	90 - 110
Iron	103	103	P/P	90 - 110
Magnesium	104	103	P/P	90 - 110
Magnesium	104	102	P/P	90 - 110
Potassium	104	103	P/P	90 - 110
Potassium	104	104	P/P	90 - 110
Potassium	104	103	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Sodium	103	102	P/P	90 - 110
Strontium	101	101	P/P	90 - 110
Strontium	101	101	P/P	90 - 110
Strontium	101	104	P/P	90 - 110
Tin	104	103	P/P	90 - 110
Tin	104	105	P/P	90 - 110
Tin	105	106	P/P	90 - 110
Titanium	100	98.8	P/P	90 - 110
Titanium	102	102	P/P	90 - 110
Titanium	102	102	P/P	90 - 110
Vanadium	103	103	P/P	90 - 110
Vanadium	105	106	P/P	90 - 110
Vanadium	106	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A125273

Included Lab Sample IDs: 2480317, 2480318, 2480319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	105	103	P/P	90 - 110
Zinc	106	107	P/P	90 - 110
Zinc	107	107	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A125278

Included Lab Sample IDs: 2480287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.0	95.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A125278

Included Lab Sample IDs: 2480287

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125282

Included Lab Sample IDs: 2480318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	101	102	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Manganese	98.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125283

Included Lab Sample IDs: 2480290, 2480292, 2480294

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125284

Included Lab Sample IDs: 2480288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125301

Included Lab Sample IDs: 2480318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	94.7	94.6	P/P	90 - 110
Copper	94.4	94.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125302
Included Lab Sample IDs: 2480290, 2480292, 2480294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	97.5	P/P	90 - 110
Kjeldahl Nitrogen	97.7	97.7	P/P	90 - 110

Reference Method: SM 5310 B-2014
Run ID: A125304
Included Lab Sample IDs: 2480288, 2480290, 2480292, 2480294

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	114	98.4	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A125319
Included Lab Sample IDs: 2480319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	90.3	91.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125325
Included Lab Sample IDs: 2480288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125335
Included Lab Sample IDs: 2480288

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A125342
Included Lab Sample IDs: 2480287, 2480289, 2480291, 2480293

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A125351
Included Lab Sample IDs: 2480317, 2480319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	97.8	P/P	90 - 110
Antimony	97.7	96.0	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Barium	101	98.3	P/P	90 - 110
Beryllium	97.9	96.9	P/P	90 - 110
Boron	102	103	P/P	90 - 110
Cadmium	97.9	95.8	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125351

Included Lab Sample IDs: 2480317, 2480319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	102	100	P/P	90 - 110
Copper	101	99.2	P/P	90 - 110
Lead	99.1	97.2	P/P	90 - 110
Manganese	94.9	93.6	P/P	90 - 110
Molybdenum	97.9	95.5	P/P	90 - 110
Nickel	103	101	P/P	90 - 110
Silver	97.2	95.2	P/P	90 - 110
Thallium	98.3	97.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A125382

Included Lab Sample IDs: 2480317, 2480319

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	96.4				7.54	
	Color (true)	95.6				1.33	
EPA 180.1 Rev. 2.0	Turbidity	103				10.9	
EPA 200.7 Rev. 4.4	Calcium	105					0.0335
	Calcium	102	103	101			0.627
	Chromium	102	98.8	98.8			0.0091
	Chromium	101	102	101	102		0.652
	Iron	104	102				0.0466
	Iron	105	108	107	107		0.588
	Magnesium	105					0.196
	Magnesium	102	104	102			0.0961
	Potassium	103					0.0430
	Potassium	104	101	101	98.7		0.410
	Sodium	105					0.611
	Sodium	102	103	101			0.0096
	Strontium	99.9					0.951
	Strontium	98.8	97.5	96.7	97.5		0.742
	Tin	101	92.7	91.5			1.31
	Tin	100	99.7	99.6	100		0.113
	Titanium	100					0.0568
	Titanium	100	103	102	101		0.992
	Vanadium	106	108	108			0.197
	Vanadium	99.2	103	102	104		1.58
	Zinc	109	107	108			1.35
	Zinc	107	111	110	109		0.702
EPA 200.8 Rev. 5.4	Aluminum	103					6.36
	Aluminum	94.8	94.3	94.2	97.5		0.127
	Antimony	100	89.6	89.1			0.514
	Antimony	96.5	96.9	97.4	105		0.518
	Arsenic	103	108	107			1.30
	Arsenic	104	104	104	105		0.282
	Barium	103	103	103			0.562
	Barium	96.0	95.7	97.0	97.3		1.14
	Beryllium	93.1	93.9	92.0			1.68
	Beryllium	96.2	91.1	93.7	101		2.79
	Boron	105					1.35
	Boron	103	100	101	106		0.872
	Cadmium	99.3	98.6	96.1			2.52
	Cadmium	97.0	98.1	94.9	95.8		3.30
	Cobalt	102	94.6	97.6			3.07
	Cobalt	102	100	99.3	99.9		0.655
	Copper	100	90.8	90.4			0.458
	Copper	99.3	99.0	99.1	98.0		0.0778
	Lead	101	103	103			0.187
	Lead	97.3	98.4	98.7	98.2		0.271
	Manganese	100					2.64
	Manganese	96.7	96.1	95.7	103		0.367
	Molybdenum	99.7	104	106			1.30
	Molybdenum	94.9	96.3	97.7	96.0		1.48
	Nickel	102	98.1	102			3.96
	Nickel	95.5	92.4	92.7	93.3		0.324
	Selenium	105	109	110			1.27
	Selenium	95.5	93.1	94.5	93.6		1.45
	Silver	98.2	89.9	90.5			0.705

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS	SMP	MS	SMP	MS
EPA 200.8 Rev. 5.4	Silver	96.0	93.6	93.6	95.6		0.0168
	Thallium	100	103	103			0.498
	Thallium	93.9	97.1	98.3	98.0		1.14
EPA 300.0 Rev. 2.1	Chloride	104	105	105		0.242	
	Sulfate	106	105	105		0.962	
EPA 350.1 Rev. 2.0	Ammonia-N	94.6	95.6	96.4			0.545
	Ammonia-N	95.0	95.0	96.4			0.927
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	101	95.9			3.14
	Kjeldahl Nitrogen	102	91.9	102			5.72
	Kjeldahl Nitrogen	94.5	90.2	97.5			7.12
EPA 353.2 Rev. 2.0	NO2NO3-N	102	94.0	92.0			2.11
	NO2NO3-N	99.5	94.0	95.0			1.02
EPA 365.1 Rev. 2.0	Total-P	105	110	109			0.777
	Total-P	104	102	102			0.302
SM 2320 B-2011	Total Alkalinity	99.7				0.824	
	Total Alkalinity	99.4				0.0380	
SM 2540 C-2015	TDS	98.0				6.09	
	TDS	92.8				3.93	
SM 2540 D-2015	TSS	96.0					
	TSS	99.2					
SM 4500-F- C-2011	Fluoride	101	105	104			0.551
	Fluoride	97.3	101	103			0.967
SM 5310 B-2014	Organic Carbon	97.1	97.0	98.1			0.943

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2480287, 2480289, 2480291, 2480293
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2480287, 2480289, 2480291, 2480293
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2480317, 2480318, 2480319
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2480317, 2480318, 2480319
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2480287, 2480289, 2480291, 2480293
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2480287, 2480289, 2480291, 2480293
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2480288, 2480290, 2480292, 2480294
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2480288, 2480290, 2480292, 2480294
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2480288, 2480290, 2480292, 2480294
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2480288, 2480290, 2480292, 2480294
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2480287, 2480289, 2480291, 2480293
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2480317, 2480318, 2480319
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2480287, 2480289, 2480291, 2480293
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2480287, 2480289, 2480291, 2480293
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2480287, 2480289, 2480291, 2480293
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2480288, 2480290, 2480292, 2480294

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	04/05/2024			04/05/2024 13:52	Jessica K Wilks	2480289, 2480291
	04/05/2024			04/05/2024 13:53	Jessica K Wilks	2480293
	04/05/2024			04/05/2024 14:46	Jessica K Wilks	2480287
	04/05/2024			04/05/2024 14:21	Jessica K Wilks	2480289
EPA 180.1 Rev. 2.0	04/05/2024			04/05/2024 14:25	Jessica K Wilks	2480291
	04/05/2024			04/05/2024 14:26	Jessica K Wilks	2480293
	04/05/2024			04/05/2024 14:45	Jessica K Wilks	2480287
	04/05/2024			04/05/2024 14:45	Jessica K Wilks	2480287
EPA 200.7 Rev. 4.4	04/05/2024	04/08/2024 13:30	George D Taylor	04/10/2024 16:49	Chase Roberts	2480318
	04/05/2024	04/08/2024 13:30	George D Taylor	04/10/2024 16:56	Chase Roberts	2480318
	04/05/2024	04/08/2024 13:40	George D Taylor	04/10/2024 19:02	Chase Roberts	2480317
	04/05/2024	04/08/2024 13:40	George D Taylor	04/10/2024 19:57	Chase Roberts	2480317
	04/05/2024	04/08/2024 13:40	George D Taylor	04/10/2024 20:43	Chase Roberts	2480319
	04/05/2024	04/08/2024 13:40	George D Taylor	04/10/2024 20:51	Chase Roberts	2480319
EPA 200.8 Rev. 5.4	04/05/2024	04/08/2024 13:40	George D Taylor	04/12/2024 20:52	Chase Roberts	2480319
	04/05/2024	04/08/2024 13:30	George D Taylor	04/10/2024 03:01	McKinley C Carter	2480318
	04/05/2024	04/08/2024 13:30	George D Taylor	04/10/2024 18:22	McKinley C Carter	2480318
	04/05/2024	04/08/2024 13:30	George D Taylor	04/11/2024 20:01	Emily M Philpot	2480318
	04/05/2024	04/08/2024 13:40	George D Taylor	04/16/2024 16:20	Emily M Philpot	2480319
	04/05/2024	04/08/2024 13:40	George D Taylor	04/16/2024 16:28	Emily M Philpot	2480317
	04/05/2024	04/08/2024 13:40	George D Taylor	04/16/2024 17:39	Emily M Philpot	2480319
	04/05/2024	04/08/2024 13:40	George D Taylor	04/16/2024 17:48	Emily M Philpot	2480317
	04/05/2024	04/08/2024 13:40	George D Taylor	04/18/2024 07:07	Emily M Philpot	2480319
	04/05/2024	04/08/2024 13:40	George D Taylor	04/18/2024 07:14	Emily M Philpot	2480317
EPA 300.0 Rev. 2.1	04/05/2024			04/19/2024 07:28	James L Waggeberby	2480287
	04/05/2024			04/19/2024 07:43	James L Waggeberby	2480289
	04/05/2024			04/19/2024 07:58	James L Waggeberby	2480291
	04/05/2024			04/19/2024 08:13	James L Waggeberby	2480293
EPA 350.1 Rev. 2.0	04/05/2024			04/08/2024 13:01	Kenneth H Lee	2480288
	04/05/2024			04/10/2024 11:31	Khloe J Berg	2480294
	04/05/2024			04/10/2024 13:26	Khloe J Berg	2480290
	04/05/2024			04/10/2024 13:27	Khloe J Berg	2480292
EPA 351.2 Rev. 2.0	04/05/2024	04/10/2024 15:34	Ping Hua	04/12/2024 11:57	Robyn Blevins	2480290
	04/05/2024	04/10/2024 15:34	Ping Hua	04/12/2024 12:05	Robyn Blevins	2480292
	04/05/2024	04/10/2024 15:34	Ping Hua	04/12/2024 12:07	Robyn Blevins	2480294
	04/05/2024	04/12/2024 07:57	Simonne.V. Calhoun	04/15/2024 12:42	Robyn Blevins	2480288
EPA 353.2 Rev. 2.0	04/05/2024			04/10/2024 13:42	Fadila Guebre	2480290
	04/05/2024			04/10/2024 13:43	Fadila Guebre	2480292
	04/05/2024			04/10/2024 13:44	Fadila Guebre	2480294
	04/05/2024			04/15/2024 14:03	Fadila Guebre	2480288
EPA 365.1 Rev. 2.0	04/05/2024	04/09/2024 11:06	Adam P Silver	04/10/2024 17:45	Simonne.V. Calhoun	2480290

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	04/05/2024	04/09/2024 11:06	Adam P Silver	04/10/2024 17:46	Simonne.V. Calhoun	2480292
	04/05/2024	04/09/2024 11:06	Adam P Silver	04/10/2024 17:47	Simonne.V. Calhoun	2480294
	04/05/2024	04/10/2024 15:06	Josephine W Gitau	04/11/2024 12:03	Chandler E Cox	2480288
SM 2320 B-2011	04/05/2024			04/10/2024 03:29	Dale L. Simmons	2480293
	04/05/2024			04/10/2024 04:04	Dale L. Simmons	2480291
	04/05/2024			04/10/2024 04:28	Dale L. Simmons	2480289
	04/05/2024			04/11/2024 01:52	Dale L. Simmons	2480287
SM 2340 B-2011	04/05/2024			04/10/2024 16:49	Chase Roberts	2480318
	04/05/2024			04/10/2024 19:57	Chase Roberts	2480317
	04/05/2024			04/10/2024 20:51	Chase Roberts	2480319
SM 2540 C-2015	04/05/2024			04/08/2024 14:05	Ping Hua	2480289, 2480291, 2480293
	04/05/2024			04/09/2024 16:17	Yijie Li	2480287
SM 2540 D-2015	04/05/2024			04/08/2024 14:05	Ping Hua	2480289, 2480291, 2480293
	04/05/2024			04/09/2024 16:17	Yijie Li	2480287
SM 4500-F- C-2011	04/05/2024			04/10/2024 03:29	Dale L. Simmons	2480293
	04/05/2024			04/10/2024 04:04	Dale L. Simmons	2480291
	04/05/2024			04/10/2024 04:28	Dale L. Simmons	2480289
	04/05/2024			04/10/2024 22:57	Dale L. Simmons	2480287
SM 5310 B-2014	04/05/2024			04/11/2024 13:15	Elise M. Gillis	2480288
	04/05/2024			04/11/2024 13:31	Elise M. Gillis	2480290
	04/05/2024			04/11/2024 13:46	Elise M. Gillis	2480292
	04/05/2024			04/11/2024 14:01	Elise M. Gillis	2480294