Chemical Analysis Report

SO-DIST-2023-08-22-01

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

Event Description: **2023 SMP : Myakka Cricks**
Request ID: **RQ-2023-08-21-18**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
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Certified by: Colin Wright, Program Administrator

Date Certified: 18-SEP-2023 12:54

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: LITTLE ALLIGATOR CREEK AT MIDWAY BLVD Collection Date/Time: 08/21/2023 08:35

Field ID: G3SD0071 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432582	DEP SOP: NU-094-1	Color (true)	38		PCU	P434184	
	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P434180	
	EPA 300.0 Rev. 2.1	Chloride	7.1E+03		mg Cl/L	P434330	
		Sulfate	1.0E+03		mg SO4/L	P434332	
	SM 2320 B-2011	Total Alkalinity	136		mg CaCO3/L	P434550	
	SM 2540 C-2015	TDS	1.23E+04		mg/L	P434585	
	SM 2540 D-2015	TSS	8	I A	mg/L	P434583	
	SM 4500-F- C-2011	Fluoride	0.69		mg F/L	P434552	
2432584	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P434435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P434559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P434558	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P434211	
	SM 5310 B-2011	Organic Carbon	9.4		mg C/L	P434653	
2432597	EPA 200.7 Rev. 4.4	Calcium	202		mg/L	P434477	
		Iron	140	I	ug/L	P434477	
		Magnesium	481		mg/L	P434477	
		Potassium	143		mg/L	P434477	
		Sodium	3.87E+03		mg/L	P434477	
		Strontium	4.03E+03		ug/L	P434477	
		Tin	60	U	ug/L	P434477	
		Titanium	2.2	U	ug/L	P434477	
		Vanadium	6.0	U	ug/L	P434477	
		Zinc	15	U	ug/L	P434477	
	EPA 200.8 Rev. 5.4	Aluminum	81		ug/L	P434477	
		Antimony	0.26	I	ug/L	P434477	
		Arsenic	3.10		ug/L	P434477	
		Barium	20.1		ug/L	P434477	
		Beryllium	0.040	U	ug/L	P434477	
		Boron	1.51E+03		ug/L	P434477	
		Cadmium	0.080	U	ug/L	P434477	
		Chromium	1.6	U	ug/L	P434477	
		Cobalt	0.10	I	ug/L	P434477	
		Copper	1.6	U	ug/L	P434477	
		Lead	0.80	U	ug/L	P434477	
		Manganese	18.7		ug/L	P434477	
		Molybdenum	5.2		ug/L	P434477	
		Nickel	2.0	U	ug/L	P434477	
		Selenium	0.80	U	ug/L	P434477	
		Silver	0.040	U	ug/L	P434477	
		Thallium	0.40	U	ug/L	P434477	
	SM 2340 B-2011	Hardness	2.49E+03		mg/L	P434477	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium and strontium are unavailable because of high analyte concentration in the QC sample.

Sample Location: ROCK CREEK AT EISENHOWER DR **Collection Date/Time: 08/21/2023 09:00**

Field ID: G3SD0070 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432583	DEP SOP: NU-094-1	Color (true)	89		PCU	P434184	
	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P434180	
	EPA 300.0 Rev. 2.1	Chloride	3.7E+03		mg Cl/L	P434878	
		Sulfate	560		mg SO4/L	P434881	
	SM 2320 B-2011	Total Alkalinity	102	A	mg CaCO3/L	P434550	
	SM 2540 C-2015	TDS	6.12E+03		mg/L	P434585	
	SM 2540 D-2015	TSS	7	I	mg/L	P434582	
	SM 4500-F- C-2011	Fluoride	0.49		mg F/L	P434552	
2432585	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P434435	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P434559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P434558	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P434211	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P434340	
2432598	EPA 200.7 Rev. 4.4	Calcium	131		mg/L	P434477	
		Iron	420		ug/L	P434477	
		Magnesium	238		mg/L	P434477	
		Potassium	73		mg/L	P434477	
		Sodium	1.93E+03		mg/L	P434477	
		Strontium	3.75E+03		ug/L	P434477	
		Tin	9.0	U	ug/L	P434477	
		Titanium	2.5	I	ug/L	P434477	
		Vanadium	6.0	U	ug/L	P434477	
		Zinc	15	U	ug/L	P434477	
	EPA 200.8 Rev. 5.4	Aluminum	193		ug/L	P434477	
		Antimony	0.20	U	ug/L	P434477	
		Arsenic	2.5		ug/L	P434477	
		Barium	16.7		ug/L	P434477	
		Beryllium	0.10	U	ug/L	P434477	
		Boron	800		ug/L	P434477	
		Cadmium	0.080	U	ug/L	P434477	
		Chromium	1.6	U	ug/L	P434477	
		Cobalt	0.24	I	ug/L	P434477	
		Copper	1.6	U	ug/L	P434477	
		Lead	0.80	U	ug/L	P434477	
		Manganese	31.5		ug/L	P434477	
		Molybdenum	3.1	I	ug/L	P434477	
		Nickel	2.0	U	ug/L	P434477	
		Selenium	0.80	U	ug/L	P434477	
		Silver	0.040	U	ug/L	P434477	
		Thallium	0.40	U	ug/L	P434477	
	SM 2340 B-2011	Hardness	1.30E+03		mg/L	P434477	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium, sodium and strontium are unavailable because of high analyte concentration in the QC sample.

Sample Location: MYAKKA RIVER (TIDAL) AT US 41 **Collection Date/Time: 08/21/2023 09:30**

Field ID: G3SD0068 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432586	DEP SOP: NU-094-1	Color (true)	150		PCU	P434184	
	EPA 180.1 Rev. 2.0	Turbidity	2.8	A	NTU	P434181	
	EPA 300.0 Rev. 2.1	Chloride	1.2E+03		mg Cl/L	P434330	
		Sulfate	260		mg SO4/L	P434332	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P434411	RPD
	SM 2540 C-2015	TDS	2.37E+03		mg/L	P434585	
	SM 2540 D-2015	TSS	7	I	mg/L	P434582	
	SM 4500-F- C-2011	Fluoride	0.36		mg F/L	P434417	
2432587	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P434443	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P434320	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P434744	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P434311	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P434340	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BIG SLOUGH CANAL **Collection Date/Time: 08/21/2023 10:15**

Field ID: G3SD0161 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432599	EPA 200.7 Rev. 4.4	Calcium	74.4		mg/L	P434232	
		Iron	1.01E+03		ug/L	P434232	
		Magnesium	13.8		mg/L	P434232	
		Potassium	3.9		mg/L	P434232	
		Sodium	57.6		mg/L	P434232	
		Strontium	1.45E+03		ug/L	P434232	
		Tin	3.0	U	ug/L	P434232	
		Titanium	1.2	I	ug/L	P434232	
		Vanadium	2.0	U	ug/L	P434232	
		Zinc	5.0	U	ug/L	P434232	
	EPA 200.8 Rev. 5.4	Aluminum	49		ug/L	P434232	
		Antimony	0.16	I	ug/L	P434232	
		Arsenic	2.68		ug/L	P434232	
		Barium	17.4		ug/L	P434232	
		Beryllium	0.013	I	ug/L	P434232	
		Boron	51.3		ug/L	P434232	
		Cadmium	0.020	U	ug/L	P434232	
		Chromium	0.58	I	ug/L	P434232	
		Cobalt	0.143		ug/L	P434232	
		Copper	0.75	I	ug/L	P434232	
		Lead	0.20	U	ug/L	P434232	
		Manganese	16.6		ug/L	P434232	
		Molybdenum	1.94		ug/L	P434232	
		Nickel	0.76	I	ug/L	P434232	
		Selenium	0.24	I	ug/L	P434232	
		Silver	0.010	U	ug/L	P434232	
		Thallium	0.10	U	ug/L	P434232	
	SM 2340 B-2011	Hardness	243		mg/L	P434232	

Sample Location: BIG SLOUGH AT BUTLER PARK **Collection Date/Time: 08/21/2023 10:40**

Field ID: G3SD0168 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432600	EPA 200.7 Rev. 4.4	Calcium	68.7		mg/L	P434232	
		Iron	1.88E+03		ug/L	P434232	
		Magnesium	14.0		mg/L	P434232	
		Potassium	4.0		mg/L	P434232	
		Sodium	40.8		mg/L	P434232	
		Strontium	1.07E+03		ug/L	P434232	
		Tin	3.0	U	ug/L	P434232	
		Titanium	1.9	I	ug/L	P434232	
		Vanadium	2.0	U	ug/L	P434232	
		Zinc	5.0	U	ug/L	P434232	
	EPA 200.8 Rev. 5.4	Aluminum	91		ug/L	P434232	
		Antimony	0.11	I	ug/L	P434232	
		Arsenic	2.67		ug/L	P434232	
		Barium	18.7		ug/L	P434232	
		Beryllium	0.023	I	ug/L	P434232	
		Boron	41.9		ug/L	P434232	
		Cadmium	0.020	U	ug/L	P434232	
		Chromium	0.81	I	ug/L	P434232	
		Cobalt	0.244		ug/L	P434232	
		Copper	0.90		ug/L	P434232	
		Lead	0.20	U	ug/L	P434232	
		Manganese	21.7		ug/L	P434232	
		Molybdenum	1.09		ug/L	P434232	
		Nickel	0.90	I	ug/L	P434232	
		Selenium	0.25	I	ug/L	P434232	
		Silver	0.010	U	ug/L	P434232	
		Thallium	0.10	U	ug/L	P434232	
	SM 2340 B-2011	Hardness	229		mg/L	P434232	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P434184

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434180

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434181

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434232

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434477

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: P434232

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434477

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434330

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434332

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434881

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434435

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434443

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434558

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434744

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434211

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434311

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

Reference Method: SM 2320 B-2011
Batch ID: P434411

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

Reference Method: SM 2320 B-2011
Batch ID: P434550

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

Reference Method: SM 2540 C-2015
Batch ID: P434585

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P434582

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P434583

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P434417

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P434552

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P434340

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P434653

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: P434184

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434180

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434181

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.9		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	104		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Strontium	99.0		P	85 - 115
Tin	103		P	85 - 115
Titanium	99.7		P	85 - 115
Vanadium	100		P	85 - 115
Zinc	99.5		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	80 - 120
Iron	104		P	80 - 120
Magnesium	102		P	80 - 120
Potassium	102		P	80 - 120
Sodium	102		P	80 - 120
Strontium	101		P	80 - 120
Tin	99.9		P	80 - 120
Titanium	98.4		P	80 - 120
Vanadium	99.9		P	80 - 120
Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.1		P	85 - 115
Antimony	98.4		P	85 - 115
Arsenic	95.5		P	85 - 115
Barium	101		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Beryllium	93.3		P	85 - 115
Boron	98.8		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	94.8		P	85 - 115
Cobalt	96.0		P	85 - 115
Copper	94.4		P	85 - 115
Lead	92.3		P	85 - 115
Manganese	95.0		P	85 - 115
Molybdenum	95.4		P	85 - 115
Nickel	93.0		P	85 - 115
Selenium	96.4		P	85 - 115
Silver	113		P	85 - 115
Thallium	95.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	80 - 120
Antimony	101		P	80 - 120
Arsenic	99.4		P	80 - 120
Barium	102		P	80 - 120
Beryllium	93.2		P	80 - 120
Boron	105		P	80 - 120
Cadmium	100		P	80 - 120
Chromium	97.9		P	80 - 120
Cobalt	99.3		P	80 - 120
Copper	97.6		P	80 - 120
Lead	97.0		P	80 - 120
Manganese	99.2		P	80 - 120
Molybdenum	99.5		P	80 - 120
Nickel	98.3		P	80 - 120
Selenium	99.7		P	80 - 120
Silver	105		P	80 - 120
Thallium	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434881

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434435

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434443

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434320

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434558

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434744

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: P434211

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434311

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

Reference Method: SM 2320 B-2011
Batch ID: P434411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.8		P	92 - 105

Reference Method: SM 2320 B-2011
Batch ID: P434550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P434585

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

Reference Method: SM 2540 D-2015
Batch ID: P434582

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	103		P	85 - 106

Reference Method: SM 2540 D-2015
Batch ID: P434583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	98.2		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P434417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P434552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P434340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P434653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432386	Calcium	104	102	P/P	80 - 120
2432386	Iron	107	105	P/P	80 - 120
2432386	Magnesium	106	105	P/P	80 - 120
2432386	Potassium	104	104	P/P	80 - 120
2432386	Sodium	106	106	P/P	80 - 120
2432386	Strontium	101	101	P/P	80 - 120
2432386	Tin	103	102	P/P	80 - 120
2432386	Titanium	103	103	P/P	80 - 120
2432386	Vanadium	102	102	P/P	80 - 120
2432386	Zinc	102	102	P/P	80 - 120
2432400	Calcium	101		P	80 - 120
2432400	Iron	97.6		P	80 - 120
2432400	Magnesium	103		P	80 - 120
2432400	Potassium	93.2		P	80 - 120
2432400	Sodium	104		P	80 - 120
2432400	Strontium	93.2		P	80 - 120
2432400	Tin	95.1		P	80 - 120
2432400	Titanium	93.0		P	80 - 120
2432400	Vanadium	96.6		P	80 - 120
2432400	Zinc	92.9		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432598	Iron	94.4	91.8	P/P	80 - 120
2432598	Tin	90.5	99.7	P/P	80 - 120
2432598	Titanium	95.2	98.5	P/P	80 - 120
2432598	Vanadium	102	104	P/P	80 - 120
2432598	Zinc	98.8	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432386	Aluminum	97.8	97.9	P/P	80 - 120
2432386	Antimony	98.4	98.2	P/P	80 - 120
2432386	Arsenic	95.1	95.3	P/P	80 - 120
2432386	Barium	102	101	P/P	80 - 120
2432386	Beryllium	91.3	91.3	P/P	80 - 120
2432386	Boron	98.2	98.3	P/P	80 - 120
2432386	Cadmium	98.3	97.5	P/P	80 - 120
2432386	Chromium	94.5	94.3	P/P	80 - 120
2432386	Cobalt	96.5	96.0	P/P	80 - 120
2432386	Copper	97.1	96.3	P/P	80 - 120
2432386	Lead	92.1	91.5	P/P	80 - 120
2432386	Manganese	95.1	93.8	P/P	80 - 120
2432386	Molybdenum	94.8	95.0	P/P	80 - 120
2432386	Nickel	93.8	93.6	P/P	80 - 120
2432386	Selenium	96.5	96.2	P/P	80 - 120
2432386	Silver	111	109	P/P	80 - 120
2432386	Thallium	96.7	97.6	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432400	Aluminum	94.5		P	80 - 120
2432400	Antimony	100		P	80 - 120
2432400	Arsenic	94.3		P	80 - 120
2432400	Barium	102		P	80 - 120
2432400	Beryllium	87.9		P	80 - 120
2432400	Boron	98.9		P	80 - 120
2432400	Cadmium	98.3		P	80 - 120
2432400	Chromium	93.4		P	80 - 120
2432400	Cobalt	92.4		P	80 - 120
2432400	Copper	96.6		P	80 - 120
2432400	Lead	97.5		P	80 - 120
2432400	Manganese	93.3		P	80 - 120
2432400	Molybdenum	95.5		P	80 - 120
2432400	Nickel	90.3		P	80 - 120
2432400	Selenium	92.4		P	80 - 120
2432400	Silver	108		P	80 - 120
2432400	Thallium	99.2		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432598	Aluminum	124	126	P/P	70 - 130
2432598	Antimony	122	124	P/P	70 - 130
2432598	Arsenic	107	107	P/P	70 - 130
2432598	Barium	125	127	P/P	70 - 130
2432598	Beryllium	102	106	P/P	70 - 130
2432598	Boron	98.7	106	P/P	70 - 130
2432598	Cadmium	115	119	P/P	70 - 130
2432598	Chromium	119	123	P/P	70 - 130
2432598	Cobalt	122	122	P/P	70 - 130
2432598	Copper	122	124	P/P	70 - 130
2432598	Lead	124	125	P/P	70 - 130
2432598	Manganese	117	120	P/P	70 - 130
2432598	Molybdenum	103	106	P/P	70 - 130
2432598	Nickel	121	123	P/P	70 - 130
2432598	Selenium	126	126	P/P	70 - 130
2432598	Silver	120	122	P/P	70 - 130
2432598	Thallium	128	129	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432489	Chloride	101		P	90 - 110
2432529	Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432489	Sulfate	97.6		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432529	Sulfate	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435068	Chloride	109		P	90 - 110
2435175	Chloride	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435068	Sulfate	108		P	90 - 110
2435175	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2431898	Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432534	Ammonia-N	96.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432409	Kjeldahl Nitrogen	95.6	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432410	NO2NO3-N	97.4	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432535	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432584	Total-P	101	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432651	Total-P	110	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P434417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432389	Fluoride	100	100	P/P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P434552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432583	Fluoride	102	102	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P434340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432534	Organic Carbon	94.6	96.0	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P434653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432493	Organic Carbon	94.3	94.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P434184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432490	Color (true)	3.00	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432389	Turbidity	1.71	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432586	Turbidity	11.3	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432386	Calcium	1.75	Spike	P	0 - 20
2432386	Iron	1.84	Spike	P	0 - 20
2432386	Magnesium	1.51	Spike	P	0 - 20
2432386	Potassium	0.607	Spike	P	0 - 20
2432386	Sodium	0.0319	Spike	P	0 - 20
2432386	Strontium	0.333	Spike	P	0 - 20
2432386	Tin	1.05	Spike	P	0 - 20
2432386	Titanium	0.110	Spike	P	0 - 20
2432386	Vanadium	0.680	Spike	P	0 - 20
2432386	Zinc	0.111	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432598	Calcium	1.40	Spike	P	0 - 20
2432598	Iron	2.58	Spike	P	0 - 20
2432598	Magnesium	1.43	Spike	P	0 - 20
2432598	Potassium	0.506	Spike	P	0 - 20
2432598	Sodium	2.74	Spike	P	0 - 20
2432598	Strontium	1.65	Spike	P	0 - 20
2432598	Tin	9.63	Spike	P	0 - 20
2432598	Titanium	3.16	Spike	P	0 - 20
2432598	Vanadium	2.03	Spike	P	0 - 20
2432598	Zinc	4.80	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432386	Aluminum	0.102	Spike	P	0 - 20
2432386	Antimony	0.209	Spike	P	0 - 20
2432386	Arsenic	0.165	Spike	P	0 - 20
2432386	Barium	1.07	Spike	P	0 - 20
2432386	Beryllium	0.0410	Spike	P	0 - 20
2432386	Boron	0.108	Spike	P	0 - 20
2432386	Cadmium	0.901	Spike	P	0 - 20
2432386	Chromium	0.227	Spike	P	0 - 20
2432386	Cobalt	0.594	Spike	P	0 - 20
2432386	Copper	0.748	Spike	P	0 - 20
2432386	Lead	0.619	Spike	P	0 - 20
2432386	Manganese	1.26	Spike	P	0 - 20
2432386	Molybdenum	0.235	Spike	P	0 - 20
2432386	Nickel	0.151	Spike	P	0 - 20
2432386	Selenium	0.246	Spike	P	0 - 20
2432386	Silver	1.22	Spike	P	0 - 20
2432386	Thallium	0.844	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432598	Aluminum	1.51	Spike	P	0 - 20
2432598	Antimony	2.17	Spike	P	0 - 20
2432598	Arsenic	0.157	Spike	P	0 - 20
2432598	Barium	1.04	Spike	P	0 - 20
2432598	Beryllium	3.43	Spike	P	0 - 20
2432598	Boron	1.45	Spike	P	0 - 20
2432598	Cadmium	3.22	Spike	P	0 - 20
2432598	Chromium	2.85	Spike	P	0 - 20
2432598	Cobalt	0.0571	Spike	P	0 - 20
2432598	Copper	1.85	Spike	P	0 - 20
2432598	Lead	0.509	Spike	P	0 - 20
2432598	Manganese	1.99	Spike	P	0 - 20
2432598	Molybdenum	2.44	Spike	P	0 - 20
2432598	Nickel	1.54	Spike	P	0 - 20
2432598	Selenium	0.151	Spike	P	0 - 20
2432598	Silver	1.26	Spike	P	0 - 20
2432598	Thallium	0.504	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432489	Chloride	0.0772	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432489	Sulfate	0.100	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435068	Chloride	0.671	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435068	Sulfate	0.911	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431898	Ammonia-N	0.907	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432534	Ammonia-N	4.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432534	Kjeldahl Nitrogen	4.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432409	Kjeldahl Nitrogen	0.988	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432410	NO2NO3-N	0.990	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432535	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432584	Total-P	0.702	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432651	Total-P	1.13	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P434411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432389	Total Alkalinity	4.05	Sample	F	0 - 3.9

Reference Method: SM 2320 B-2011
Batch ID: P434550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432583	Total Alkalinity	0.115	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P434585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432530	TDS	7.02	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P434417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432389	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 4500-F- C-2011
Batch ID: P434552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432583	Fluoride	0.0	Spike	P	0 - 1.9

Quality Assurance Report
Precision

Reference Method: SM 5310 B-2011
Batch ID: P434340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432534	Organic Carbon	1.06	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P434653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432493	Organic Carbon	0.0808	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A121177
Included Lab Sample IDs: 2432582, 2432583, 2432586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1
Run ID: A121178
Included Lab Sample IDs: 2432582, 2432583, 2432586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.8	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A121182
Included Lab Sample IDs: 2432582, 2432586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	98.5	P/P	90 - 110
Sulfate	97.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121224
Included Lab Sample IDs: 2432584, 2432585

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A121239
Included Lab Sample IDs: 2432599, 2432600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.3	96.0	P/P	90 - 110
Aluminum	96.7	96.3	P/P	90 - 110
Antimony	95.8	96.0	P/P	90 - 110
Antimony	96.0	95.8	P/P	90 - 110
Arsenic	93.5	94.1	P/P	90 - 110
Arsenic	95.2	93.5	P/P	90 - 110
Barium	97.1	98.1	P/P	90 - 110
Barium	98.2	97.1	P/P	90 - 110
Beryllium	92.9	93.8	P/P	90 - 110
Beryllium	94.9	92.9	P/P	90 - 110
Boron	94.7	96.6	P/P	90 - 110
Boron	96.6	92.3	P/P	90 - 110
Cadmium	96.6	97.3	P/P	90 - 110
Cadmium	97.3	96.6	P/P	90 - 110
Chromium	95.3	98.0	P/P	90 - 110
Chromium	98.0	94.3	P/P	90 - 110
Cobalt	94.6	94.1	P/P	90 - 110
Cobalt	95.6	94.6	P/P	90 - 110
Manganese	94.5	97.5	P/P	90 - 110
Manganese	97.5	94.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A121239
Included Lab Sample IDs: 2432599, 2432600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Molybdenum	93.8	93.5	P/P	90 - 110
Molybdenum	94.3	93.8	P/P	90 - 110
Nickel	91.1	91.1	P/P	90 - 110
Nickel	92.7	91.1	P/P	90 - 110
Selenium	95.7	95.9	P/P	90 - 110
Selenium	95.9	95.8	P/P	90 - 110
Silver	95.9	96.3	P/P	90 - 110
Silver	96.9	95.9	P/P	90 - 110
Thallium	92.9	93.0	P/P	90 - 110
Thallium	93.0	92.0	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A121240
Included Lab Sample IDs: 2432585, 2432587

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A121241
Included Lab Sample IDs: 2432599, 2432600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	104	103	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	104	102	P/P	90 - 110
Strontium	97.1	100	P/P	90 - 110
Tin	96.8	101	P/P	90 - 110
Titanium	99.0	102	P/P	90 - 110
Vanadium	98.1	101	P/P	90 - 110
Zinc	96.3	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A121249
Included Lab Sample IDs: 2432587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121251
Included Lab Sample IDs: 2432587

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A121269
Included Lab Sample IDs: 2432599, 2432600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	97.6	96.1	P/P	90 - 110
Lead	96.4	95.6	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A121272
Included Lab Sample IDs: 2432586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.2	98.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A121272
Included Lab Sample IDs: 2432586

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121289
Included Lab Sample IDs: 2432584, 2432585

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121292
Included Lab Sample IDs: 2432587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.9	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A121345
Included Lab Sample IDs: 2432582, 2432583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.3	98.7	P/P	90 - 110
Total Alkalinity	98.3	96.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A121345
Included Lab Sample IDs: 2432582, 2432583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	105	P/P	90 - 110
Fluoride	102	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A121346
Included Lab Sample IDs: 2432597, 2432598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.4	99.0	P/P	90 - 110
Antimony	95.8	94.4	P/P	90 - 110
Arsenic	100	99.5	P/P	90 - 110
Arsenic	99.5	99.8	P/P	90 - 110
Barium	98.4	97.9	P/P	90 - 110
Beryllium	97.1	97.2	P/P	90 - 110
Beryllium	97.2	97.5	P/P	90 - 110
Boron	95.9	99.1	P/P	90 - 110
Boron	99.1	95.9	P/P	90 - 110
Cadmium	97.8	97.0	P/P	90 - 110
Chromium	97.1	95.4	P/P	90 - 110
Cobalt	99.6	99.5	P/P	90 - 110
Copper	98.8	99.6	P/P	90 - 110
Lead	95.5	94.2	P/P	90 - 110
Manganese	97.4	96.8	P/P	90 - 110
Molybdenum	98.1	96.9	P/P	90 - 110
Molybdenum	98.3	98.1	P/P	90 - 110
Nickel	99.4	99.9	P/P	90 - 110
Selenium	98.3	97.0	P/P	90 - 110
Silver	95.7	95.0	P/P	90 - 110
Thallium	96.9	95.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A121348
Included Lab Sample IDs: 2432597, 2432598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	95 - 105
Calcium	102	102	P/P	90 - 110
Iron	101	101	P/P	95 - 105
Iron	101	103	P/P	90 - 110
Magnesium	100	101	P/P	95 - 105
Magnesium	101	103	P/P	90 - 110
Potassium	98.9	99.6	P/P	95 - 105
Potassium	99.6	102	P/P	90 - 110
Sodium	101	102	P/P	90 - 110
Sodium	99.6	101	P/P	95 - 105
Strontium	101	99.1	P/P	95 - 105
Strontium	99.1	99.6	P/P	90 - 110
Tin	97.7	98.4	P/P	90 - 110
Tin	99.5	97.7	P/P	95 - 105
Titanium	98.0	98.1	P/P	90 - 110
Titanium	99.2	98.0	P/P	95 - 105
Vanadium	97.9	98.3	P/P	90 - 110
Vanadium	99.3	97.9	P/P	95 - 105
Zinc	97.7	97.4	P/P	90 - 110
Zinc	99.3	97.7	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A121351
Included Lab Sample IDs: 2432584, 2432585

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A121383
Included Lab Sample IDs: 2432584, 2432585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.7	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A121391
Included Lab Sample IDs: 2432584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	92.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A121424
Included Lab Sample IDs: 2432587

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A121485
Included Lab Sample IDs: 2432583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	101	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	102					3.00	
EPA 180.1 Rev. 2.0	Turbidity	98.2					1.71	
	Turbidity	97.9					11.3	
EPA 200.7 Rev. 4.4	Calcium	104	104	102	101			1.75
	Calcium	100						1.40
	Iron	104	107	105	97.6			1.84
	Iron	104	94.4	91.8				2.58
	Magnesium	104	106	105	103			1.51
	Magnesium	102						1.43
	Potassium	101	104	104	93.2			0.607
	Potassium	102						0.506
	Sodium	105	106	106	104			0.0319
	Sodium	102						2.74
	Strontium	99.0	101	101	93.2			0.333
	Strontium	101						1.65
	Tin	103	103	102	95.1			1.05
	Tin	99.9	90.5	99.7				9.63
	Titanium	99.7	103	103	93.0			0.110
	Titanium	98.4	95.2	98.5				3.16
	Vanadium	100	102	102	96.6			0.680
	Vanadium	99.9	102	104				2.03
	Zinc	99.5	102	102	92.9			0.111
	Zinc	101	98.8	104				4.80
EPA 200.8 Rev. 5.4	Aluminum	98.1	97.8	97.9	94.5			0.102
	Aluminum	101	124	126				1.51
	Antimony	98.4	98.4	98.2	100			0.209
	Antimony	101	122	124				2.17
	Arsenic	95.5	95.1	95.3	94.3			0.165
	Arsenic	99.4	107	107				0.157
	Barium	101	102	101	102			1.07
	Barium	102	125	127				1.04
	Beryllium	93.3	91.3	91.3	87.9			0.0410
	Beryllium	93.2	102	106				3.43
	Boron	98.8	98.2	98.3	98.9			0.108
	Boron	105	98.7	106				1.45
	Cadmium	98.1	98.3	97.5	98.3			0.901
	Cadmium	100	115	119				3.22
	Chromium	94.8	94.5	94.3	93.4			0.227
	Chromium	97.9	119	123				2.85
	Cobalt	96.0	96.5	96.0	92.4			0.594
	Cobalt	99.3	122	122				0.0571
	Copper	94.4	97.1	96.3	96.6			0.748
	Copper	97.6	122	124				1.85
	Lead	92.3	92.1	91.5	97.5			0.619
	Lead	97.0	124	125				0.509
	Manganese	95.0	95.1	93.8	93.3			1.26
	Manganese	99.2	117	120				1.99
	Molybdenum	95.4	94.8	95.0	95.5			0.235
	Molybdenum	99.5	103	106				2.44
	Nickel	93.0	93.8	93.6	90.3			0.151
	Nickel	98.3	121	123				1.54
	Selenium	96.4	96.5	96.2	92.4			0.246
	Selenium	99.7	126	126				0.151
	Silver	113	111	109	108			1.22

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 200.8 Rev. 5.4	Silver	105	120	122				1.26
	Thallium	95.9	96.7	97.6	99.2			0.844
	Thallium	101	128	129				0.504
EPA 300.0 Rev. 2.1	Chloride	98.1	101	98.2			0.0772	
	Chloride	104	109	108			0.671	
	Sulfate	95.7	97.6	95.4			0.100	
	Sulfate	105	108	102			0.911	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.4	100				0.907
	Ammonia-N	99.8	96.8	102				4.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103						4.15
	Kjeldahl Nitrogen	102	95.6	96.7				0.988
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	97.4	98.4				0.990
	NO2NO3-N	102	102	103				0.976
EPA 365.1 Rev. 2.0	Total-P	102	101	102				0.702
	Total-P	106	110	108				1.13
SM 2320 B-2011	Total Alkalinity	96.8					4.05	
	Total Alkalinity	96.4					0.115	
SM 2540 C-2015	TDS	95.3					7.02	
SM 2540 D-2015	TSS	103						
	TSS	98.2						
SM 4500-F- C-2011	Fluoride	97.4	100	100				0.0
	Fluoride	98.9	102	102				0.0
SM 5310 B-2011	Organic Carbon	93.2	94.6	96.0				1.06
	Organic Carbon	93.8	94.3	94.2				0.0808

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2432582, 2432583, 2432586
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2432582, 2432583, 2432586
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2432597, 2432598, 2432599, 2432600
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2432597, 2432598, 2432599, 2432600
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2432582, 2432583, 2432586
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2432582, 2432583, 2432586
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2432584, 2432585, 2432587
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2432584, 2432585, 2432587
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2432584, 2432585, 2432587
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2432584, 2432585, 2432587
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2432582, 2432583, 2432586
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2432597, 2432598, 2432599, 2432600
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2432582, 2432583, 2432586
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2432582, 2432583, 2432586
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2432582, 2432583, 2432586
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2432584, 2432585, 2432587

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	08/22/2023			08/22/2023 15:57	Alexis Price	2432582
	08/22/2023			08/22/2023 15:58	Alexis Price	2432583, 2432586
EPA 180.1 Rev. 2.0	08/22/2023			08/22/2023 12:47	Chandler E Cox	2432582
	08/22/2023			08/22/2023 12:48	Chandler E Cox	2432583
	08/22/2023			08/22/2023 12:55	Chandler E Cox	2432586
EPA 200.7 Rev. 4.4	08/22/2023	08/23/2023 13:25	George D Taylor	08/24/2023 22:09	McKinley C Carter	2432599
	08/22/2023	08/23/2023 13:25	George D Taylor	08/24/2023 22:17	McKinley C Carter	2432600
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 17:19	McKinley C Carter	2432597
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 17:27	McKinley C Carter	2432597
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 18:02	McKinley C Carter	2432598
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 18:33	McKinley C Carter	2432598
EPA 200.8 Rev. 5.4	08/22/2023	08/23/2023 13:25	George D Taylor	08/24/2023 18:07	Emily M Philpot	2432599
	08/22/2023	08/23/2023 13:25	George D Taylor	08/24/2023 19:04	Emily M Philpot	2432600
	08/22/2023	08/23/2023 13:25	George D Taylor	08/25/2023 14:57	Conrad Hartmann	2432599
	08/22/2023	08/23/2023 13:25	George D Taylor	08/25/2023 15:04	Conrad Hartmann	2432600
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 19:13	Emily M Philpot	2432598
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 20:40	Emily M Philpot	2432597
	08/22/2023	08/29/2023 12:15	George D Taylor	09/01/2023 20:59	Emily M Philpot	2432598
EPA 300.0 Rev. 2.1	08/22/2023			08/24/2023 18:55	James L Waggerby	2432582
	08/22/2023			08/24/2023 19:41	James L Waggerby	2432586
	08/22/2023			09/12/2023 14:50	James L Waggerby	2432583
EPA 350.1 Rev. 2.0	08/22/2023			08/28/2023 12:24	Ping Hua	2432587
	08/22/2023			08/28/2023 13:58	Khloe J Berg	2432584
	08/22/2023			08/28/2023 13:59	Khloe J Berg	2432585
EPA 351.2 Rev. 2.0	08/22/2023	08/24/2023 12:32	Dana G. Hughes	08/25/2023 12:22	Samantha L Bates	2432587
	08/22/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 15:57	Samantha L Bates	2432584
	08/22/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 15:58	Samantha L Bates	2432585
EPA 353.2 Rev. 2.0	08/22/2023			08/29/2023 12:00	Anna M. Plaviak	2432584
	08/22/2023			08/29/2023 12:01	Anna M. Plaviak	2432585
	08/22/2023			09/07/2023 14:45	Anna M. Plaviak	2432587
EPA 365.1 Rev. 2.0	08/22/2023	08/23/2023 18:21	Adam P Silver	08/24/2023 11:23	Simonne.V. Calhoun	2432584
	08/22/2023	08/23/2023 18:21	Adam P Silver	08/24/2023 11:34	Simonne.V. Calhoun	2432585
	08/22/2023	08/24/2023 14:28	Alexis Price	08/25/2023 11:46	James L Waggerby	2432587
SM 2320 B-2011	08/22/2023			08/27/2023 22:52	Dale L. Simmons	2432586
	08/22/2023			09/02/2023 03:40	Dale L. Simmons	2432583
	08/22/2023			09/02/2023 06:16	Dale L. Simmons	2432582
SM 2340 B-2011	08/22/2023			08/24/2023 22:09	McKinley C Carter	2432599
	08/22/2023			08/24/2023 22:17	McKinley C Carter	2432600
	08/22/2023			09/01/2023 17:27	McKinley C Carter	2432597
	08/22/2023			09/01/2023 18:02	McKinley C Carter	2432598

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2015	08/22/2023			08/23/2023 16:38	Yijie Li	2432582, 2432583, 2432586
SM 2540 D-2015	08/22/2023			08/23/2023 16:38	Yijie Li	2432582, 2432583, 2432586
SM 4500-F- C-2011	08/22/2023			08/27/2023 22:52	Dale L. Simmons	2432586
	08/22/2023			09/02/2023 00:57	Dale L. Simmons	2432583
	08/22/2023			09/02/2023 02:27	Dale L. Simmons	2432582
SM 5310 B-2011	08/22/2023			08/25/2023 00:29	Elise M. Gillis	2432585
	08/22/2023			08/25/2023 00:45	Elise M. Gillis	2432587
	08/22/2023			09/06/2023 13:52	Elise M. Gillis	2432584