Chemical Analysis Report

NE-DIST-2023-10-31-01

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

Event Description: **Nassau North 2 Boat**
Request ID: **RQ-2023-10-16-50**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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8800 Baymeadows Way West
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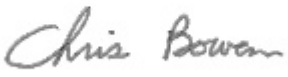
Certified by: Chris Bowen, Environmental Administrator

Date Certified: 20-NOV-2023 10:06



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: Egan Creek at Atlantic **Collection Date/Time: 10/30/2023 12:00**

Field ID: G4NE0285 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447836	DEP SOP: NU-094-1	Color (true)	26	A	PCU	P437188	
	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P437201	
	EPA 300.0 Rev. 2.1	Chloride	1.6E+04		mg Cl/L	P437824	
		Sulfate	2.3E+03		mg SO4/L	P437828	
	SM 2320 B-2011	Total Alkalinity	124		mg CaCO3/L	P437315	
	SM 2540 C-2015	TDS	2.88E+04		mg/L	P437681	
	SM 2540 D-2015	TSS	7	I	mg/L	P437572	
	SM 4500-F- C-2011	Fluoride	1.2		mg F/L	P437317	
2447837	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P437343	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P437234	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P437701	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P437278	
	SM 5310 B-2011	Organic Carbon	6.6		mg C/L	P437324	

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: Nassau Riv US 17 **Collection Date/Time: 10/30/2023 13:10**

Field ID: 19020002 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2447843	EPA 200.7 Rev. 4.4	Calcium	236		mg/L	P437427	
		Iron	490		ug/L	P437427	
		Magnesium	725		mg/L	P437427	
		Potassium	226		mg/L	P437427	
		Sodium	6.25E+03		mg/L	P437427	
		Strontium	4.46E+03		ug/L	P437427	
		Tin	150	U	ug/L	P437427	
		Titanium	7.5	I	ug/L	P437427	
		Vanadium	6.0	U	ug/L	P437427	
		Zinc	15	U	ug/L	P437427	
	EPA 200.8 Rev. 5.4	Aluminum	616		ug/L	P437427	
		Antimony	0.20	U	ug/L	P437427	
		Arsenic	2.33		ug/L	P437427	
		Barium	21.1		ug/L	P437427	
		Beryllium	0.048	I	ug/L	P437427	
		Boron	2.59E+03		ug/L	P437427	
		Cadmium	0.080	U	ug/L	P437427	
		Chromium	4.0	U	ug/L	P437427	
		Cobalt	0.25	I	ug/L	P437427	
		Copper	1.6	U	ug/L	P437427	
		Lead	2.0	U	ug/L	P437427	
		Manganese	27.9		ug/L	P437427	
		Molybdenum	7.5		ug/L	P437427	
		Nickel	2.0	U	ug/L	P437427	
		Selenium	0.80	U	ug/L	P437427	
		Silver	0.040	U	ug/L	P437427	
		Thallium	1.0	U	ug/L	P437427	
	SM 2340 B-2011	Hardness	3.57E+03		mg/L	P437427	

Ref. Method and Comment:
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.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P437188

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437201

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437427

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	54	I	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: P437427

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	0.21	I	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: P437824

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437828

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437343

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437234

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437701

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437278

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

Reference Method: SM 2320 B-2011
Batch ID: P437315

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

Reference Method: SM 2540 C-2015
Batch ID: P437681

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P437572

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P437317

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P437324

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: P437188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437201

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	104		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	99.8		P	85 - 115
Sodium	101		P	85 - 115
Strontium	102		P	85 - 115
Tin	98.8		P	85 - 115
Titanium	99.6		P	85 - 115
Vanadium	98.9		P	85 - 115
Zinc	97.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	99.2		P	85 - 115
Barium	105		P	85 - 115
Beryllium	92.1		P	85 - 115
Boron	106		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	101		P	85 - 115
Cobalt	95.0		P	85 - 115
Copper	98.3		P	85 - 115
Lead	95.4		P	85 - 115
Manganese	104		P	85 - 115
Molybdenum	99.0		P	85 - 115
Nickel	94.8		P	85 - 115
Selenium	102		P	85 - 115
Silver	107		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437824

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437828

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437343

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437234

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437701

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437278

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

Reference Method: SM 2320 B-2011
Batch ID: P437315

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P437681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	93.6		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P437572

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	106		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P437317

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P437324

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448855	Iron	99.4	94.1	P/P	70 - 130
2448855	Tin	75.2	73.0	P/P	70 - 130
2448855	Titanium	89.7	86.4	P/P	70 - 130
2448855	Vanadium	101	98.1	P/P	70 - 130
2448855	Zinc	95.4	93.1	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448855	Aluminum	114	108	P/P	70 - 130
2448855	Antimony	97.2	97.8	P/P	70 - 130
2448855	Arsenic	107	109	P/P	70 - 130
2448855	Barium	102	103	P/P	70 - 130
2448855	Beryllium	85.6	87.8	P/P	70 - 130
2448855	Boron	117	123	P/P	70 - 130
2448855	Cadmium	89.9	94.4	P/P	70 - 130
2448855	Chromium	89.6	89.0	P/P	70 - 130
2448855	Cobalt	91.0	93.0	P/P	70 - 130
2448855	Copper	109	111	P/P	70 - 130
2448855	Lead	103	104	P/P	70 - 130
2448855	Manganese	97.3	98.0	P/P	70 - 130
2448855	Molybdenum	117	118	P/P	70 - 130
2448855	Nickel	92.4	94.9	P/P	70 - 130
2448855	Selenium	96.3	95.1	P/P	70 - 130
2448855	Silver	94.2	95.0	P/P	70 - 130
2448855	Thallium	110	113	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447763	Chloride	101		P	90 - 110
2447881	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447763	Sulfate	100		P	90 - 110
2447881	Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448035	Ammonia-N	98.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437234

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447356	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437701

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447837	NO2NO3-N	99.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447837	Total-P	97.8	96.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P437317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447355	Fluoride	98.6	98.6	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P437324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447356	Organic Carbon	93.1	92.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P437188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447836	Color (true)	11.3	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447808	Turbidity	6.15	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448855	Calcium	1.99	Spike	P	0 - 20
2448855	Iron	4.93	Spike	P	0 - 20
2448855	Magnesium	0.504	Spike	P	0 - 20
2448855	Potassium	0.683	Spike	P	0 - 20
2448855	Sodium	0.896	Spike	P	0 - 20
2448855	Strontium	1.45	Spike	P	0 - 20
2448855	Tin	2.98	Spike	P	0 - 20
2448855	Titanium	2.99	Spike	P	0 - 20
2448855	Vanadium	2.97	Spike	P	0 - 20
2448855	Zinc	2.37	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448855	Aluminum	3.84	Spike	P	0 - 20
2448855	Antimony	0.601	Spike	P	0 - 20
2448855	Arsenic	1.96	Spike	P	0 - 20
2448855	Barium	1.03	Spike	P	0 - 20
2448855	Beryllium	2.37	Spike	P	0 - 20
2448855	Boron	0.370	Spike	P	0 - 20
2448855	Cadmium	4.92	Spike	P	0 - 20
2448855	Chromium	0.670	Spike	P	0 - 20
2448855	Cobalt	2.09	Spike	P	0 - 20
2448855	Copper	1.36	Spike	P	0 - 20
2448855	Lead	0.879	Spike	P	0 - 20
2448855	Manganese	0.523	Spike	P	0 - 20
2448855	Molybdenum	0.322	Spike	P	0 - 20
2448855	Nickel	2.72	Spike	P	0 - 20
2448855	Selenium	1.23	Spike	P	0 - 20
2448855	Silver	0.848	Spike	P	0 - 20
2448855	Thallium	2.58	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447763	Chloride	0.363	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447763	Sulfate	12.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448035	Ammonia-N	0.129	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447356	Kjeldahl Nitrogen	0.666	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447837	NO2NO3-N	0.473	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P437278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447837	Total-P	0.993	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P437315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447355	Total Alkalinity	0.445	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P437681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447864	TDS	4.13	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P437317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447355	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P437324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2447356	Organic Carbon	0.542	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A122459
Included Lab Sample IDs: 2447836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.2	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A122469
Included Lab Sample IDs: 2447836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	99.5	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A122525
Included Lab Sample IDs: 2447837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A122537
Included Lab Sample IDs: 2447836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.8	99.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A122537
Included Lab Sample IDs: 2447836

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

Reference Method: SM 5310 B-2011
Run ID: A122540
Included Lab Sample IDs: 2447837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.3	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A122548
Included Lab Sample IDs: 2447837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A122551
Included Lab Sample IDs: 2447837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A122610
Included Lab Sample IDs: 2447836

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.8	P/P	90 - 110
Sulfate	100	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A122611
Included Lab Sample IDs: 2447843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	104	P/P	90 - 110
Antimony	101	99.9	P/P	90 - 110
Arsenic	99.4	103	P/P	90 - 110
Barium	103	104	P/P	90 - 110
Beryllium	98.9	101	P/P	90 - 110
Boron	102	103	P/P	90 - 110
Cadmium	104	102	P/P	90 - 110
Cobalt	96.6	98.1	P/P	90 - 110
Copper	98.6	104	P/P	90 - 110
Lead	96.1	96.4	P/P	90 - 110
Manganese	105	103	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Nickel	96.3	99.4	P/P	90 - 110
Selenium	103	104	P/P	90 - 110
Silver	101	102	P/P	90 - 110
Thallium	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A122696
Included Lab Sample IDs: 2447837

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A122753
Included Lab Sample IDs: 2447843

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.6	96.9	P/P	90 - 110
Iron	98.9	93.7	P/P	95 - 105
Magnesium	93.9	94.7	P/P	90 - 110
Potassium	98.4	100	P/P	90 - 110
Sodium	99.4	102	P/P	90 - 110
Strontium	101	105	P/P	95 - 105
Tin	101	99.1	P/P	90 - 110
Titanium	98.9	99.8	P/P	95 - 105
Vanadium	98.3	99.2	P/P	95 - 105
Zinc	99.4	99.5	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A122754
Included Lab Sample IDs: 2447843

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

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
DEP SOP: NU-094-1	Color (true)	99.0				11.3	
EPA 180.1 Rev. 2.0	Turbidity	104				6.15	
EPA 200.7 Rev. 4.4	Calcium	101					1.99
	Iron	104	99.4	94.1			4.93
	Magnesium	102					0.504
	Potassium	99.8					0.683
	Sodium	101					0.896
	Strontium	102					1.45
	Tin	98.8	75.2	73.0			2.98
	Titanium	99.6	89.7	86.4			2.99
	Vanadium	98.9	101	98.1			2.97
	Zinc	97.6	95.4	93.1			2.37
EPA 200.8 Rev. 5.4	Aluminum	103	114	108			3.84
	Antimony	102	97.2	97.8			0.601
	Arsenic	99.2	107	109			1.96
	Barium	105	102	103			1.03
	Beryllium	92.1	85.6	87.8			2.37
	Boron	106	117	123			0.370
	Cadmium	104	89.9	94.4			4.92
	Chromium	101	89.6	89.0			0.670
	Cobalt	95.0	91.0	93.0			2.09
	Copper	98.3	109	111			1.36
	Lead	95.4	103	104			0.879
	Manganese	104	97.3	98.0			0.523
	Molybdenum	99.0	117	118			0.322
	Nickel	94.8	92.4	94.9			2.72
	Selenium	102	96.3	95.1			1.23
	Silver	107	94.2	95.0			0.848
	Thallium	103	110	113			2.58
EPA 300.0 Rev. 2.1	Chloride	101	101	99.1		0.363	
	Sulfate	101	100	94.3		12.0	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.4	98.2			0.129
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102	103			0.666
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.8	100			0.473
EPA 365.1 Rev. 2.0	Total-P	105	97.8	96.6			0.993
SM 2320 B-2011	Total Alkalinity	97.6				0.445	
SM 2540 C-2015	TDS	93.6				4.13	
SM 2540 D-2015	TSS	106					
SM 4500-F- C-2011	Fluoride	99.6	98.6	98.6			0.0
SM 5310 B-2011	Organic Carbon	99.2	93.1	92.4			0.542

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2447836
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2447836
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2447843
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2447843
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2447836
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2447836
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2447837

Reference Method Descriptions

Method	Description	Associated Samples
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2447837
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2447837
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2447837
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2447836
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2447843
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2447836
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2447836
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2447836
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2447837

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	10/31/2023			10/31/2023 13:36	Chandler E Cox	2447836
EPA 180.1 Rev. 2.0	10/31/2023			10/31/2023 14:18	Anna M. Plaviak	2447836
EPA 200.7 Rev. 4.4	10/31/2023	11/06/2023 14:55	George D Taylor	11/15/2023 17:02	Samatha Luckman	2447843
	10/31/2023	11/06/2023 14:55	George D Taylor	11/15/2023 18:21	Samatha Luckman	2447843
EPA 200.8 Rev. 5.4	10/31/2023	11/06/2023 14:55	George D Taylor	11/07/2023 20:00	Conrad Hartmann	2447843
	10/31/2023	11/06/2023 14:55	George D Taylor	11/07/2023 20:48	Conrad Hartmann	2447843
	10/31/2023	11/06/2023 14:55	George D Taylor	11/15/2023 17:35	Emily M Philpot	2447843
EPA 300.0 Rev. 2.1	10/31/2023			11/08/2023 16:32	James L Waggerby	2447836
EPA 350.1 Rev. 2.0	10/31/2023			11/03/2023 11:42	Khloe J Berg	2447837
EPA 351.2 Rev. 2.0	10/31/2023	11/01/2023 13:22	Simonne.V. Calhoun	11/02/2023 14:52	Ping Hua	2447837
EPA 353.2 Rev. 2.0	10/31/2023			11/13/2023 13:57	Fadila Guebre	2447837
EPA 365.1 Rev. 2.0	10/31/2023	11/02/2023 09:55	Simonne.V. Calhoun	11/03/2023 11:46	Simonne.V. Calhoun	2447837
SM 2320 B-2011	10/31/2023			11/03/2023 00:52	Dale L. Simmons	2447836
SM 2340 B-2011	10/31/2023			11/15/2023 18:21	Samatha Luckman	2447843
SM 2540 C-2015	10/31/2023			11/03/2023 15:32	Yijie Li	2447836
SM 2540 D-2015	10/31/2023			11/03/2023 15:32	Yijie Li	2447836
SM 4500-F- C-2011	10/31/2023			11/02/2023 23:48	Dale L. Simmons	2447836
SM 5310 B-2011	10/31/2023			11/03/2023 03:32	Elise M. Gillis	2447837