

Chemical Analysis Report

NE-DIST-2024-01-23-01

Florida DEP Laboratory
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DOH Accreditation E31780

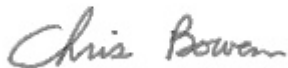
Event Description: **LSJR South West 2024**
Request ID: **RQ-2024-01-08-49**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Chris Bowen, Environmental Administrator

Date Certified: 08-FEB-2024 11:11



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: MILL LOG AT RUSSELL RD

Collection Date/Time: 01/22/2024 11:25

Field ID: G2NE1150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2462624	DEP SOP: NU-094-1	Color (true)	100		PCU	P440311	
	EPA 180.1 Rev. 2.0	Turbidity	45		NTU	P440323	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P440677	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P440514	
	SM 2540 C-2015	TDS	155		mg/L	P440825	
	SM 2540 D-2015	TSS	8	I	mg/L	P440742	
	SM 4500-F- C-2011	Fluoride	0.066	I	mg F/L	P440517	
2462625	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P440524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P440494	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P440443	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P440433	
	SM 5310 B-2014	Organic Carbon	19		mg C/L	P440569	
2462630	EPA 200.7 Rev. 4.4	Calcium	12.0		mg/L	P440359	
		Iron	980		ug/L	P440359	
		Magnesium	3.37		mg/L	P440359	
		Potassium	8.4		mg/L	P440359	
		Sodium	14.6		mg/L	P440359	
		Strontium	41.0		ug/L	P440359	
		Tin	3.0	U	ug/L	P440359	
	EPA 200.8 Rev. 5.4	Titanium	24.7		ug/L	P440359	
		Vanadium	2.3	I	ug/L	P440359	
		Zinc	37		ug/L	P440359	
		Aluminum	2.01E+03		ug/L	P440359	
		Antimony	0.098	I	ug/L	P440359	
		Arsenic	0.55		ug/L	P440359	
		Barium	20.5		ug/L	P440359	
		Beryllium	0.062		ug/L	P440359	
		Boron	22.9		ug/L	P440359	
		Cadmium	0.024	I	ug/L	P440359	
		Chromium	2.2		ug/L	P440576	
		Cobalt	0.466		ug/L	P440359	
		Copper	0.69	I	ug/L	P440359	
		Lead	1.25		ug/L	P440359	
		Manganese	16.4		ug/L	P440359	
		Molybdenum	0.35	I	ug/L	P440359	
		Nickel	1.1	I	ug/L	P440359	
		Selenium	0.23	I	ug/L	P440359	
		Silver	0.010	U	ug/L	P440359	
		Thallium	0.10	U	ug/L	P440359	
	SM 2340 B-2011	Hardness	43.9		mg/L	P440359	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 01/26/2024.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P440311

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440323

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P440359

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: P440359

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 200.8 Rev. 5.4
Batch ID: P440576

Component	Result	Code	Units
Chromium	0.40	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P440677

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P440524

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440494

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440443

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P440433

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

Reference Method: SM 2320 B-2011
Batch ID: P440514

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

Reference Method: SM 2540 C-2015
Batch ID: P440825

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P440742

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P440517

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2014
Batch ID: P440569

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: P440311

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440323

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P440359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	111		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	102		P	85 - 115
Sodium	102		P	85 - 115
Strontium	98.2		P	85 - 115
Tin	100		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	100		P	85 - 115
Zinc	95.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	101		P	85 - 115
Barium	105		P	85 - 115
Beryllium	94.2		P	85 - 115
Boron	108		P	85 - 115
Cadmium	103		P	85 - 115
Cobalt	103		P	85 - 115
Copper	100		P	85 - 115
Lead	100		P	85 - 115
Manganese	106		P	85 - 115
Molybdenum	100		P	85 - 115
Nickel	102		P	85 - 115
Selenium	101		P	85 - 115
Silver	103		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440576

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P440677

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P440524

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440494

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440443

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: P440433

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

Reference Method: SM 2320 B-2011
Batch ID: P440514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.0		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P440825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	95.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P440742

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	97.6		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P440517

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2014
Batch ID: P440569

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P440359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2461925	Calcium	101		P	80 - 120
2461925	Iron	110	110	P/P	80 - 120
2461925	Magnesium	108	108	P/P	80 - 120
2461925	Potassium	101	101	P/P	80 - 120
2461925	Sodium	101	101	P/P	80 - 120
2461925	Strontium	95.6	96.9	P/P	80 - 120
2461925	Tin	98.6	98.9	P/P	80 - 120
2461925	Titanium	102	103	P/P	80 - 120
2461925	Vanadium	99.3	99.8	P/P	80 - 120
2461925	Zinc	92.9	93.9	P/P	80 - 120
2462467	Calcium	100		P	80 - 120
2462467	Iron	110		P	80 - 120
2462467	Magnesium	103		P	80 - 120
2462467	Potassium	102		P	80 - 120
2462467	Sodium	101		P	80 - 120
2462467	Strontium	95.9		P	80 - 120
2462467	Tin	98.1		P	80 - 120
2462467	Titanium	101		P	80 - 120
2462467	Vanadium	99.7		P	80 - 120
2462467	Zinc	92.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2461925	Aluminum	102	103	P/P	80 - 120
2461925	Antimony	103	104	P/P	80 - 120
2461925	Arsenic	101	101	P/P	80 - 120
2461925	Barium	103	104	P/P	80 - 120
2461925	Beryllium	98.0	97.4	P/P	80 - 120
2461925	Boron	107	106	P/P	80 - 120
2461925	Cadmium	101	105	P/P	80 - 120
2461925	Cobalt	101	102	P/P	80 - 120
2461925	Copper	98.0	98.9	P/P	80 - 120
2461925	Lead	99.5	100	P/P	80 - 120
2461925	Manganese	105	107	P/P	80 - 120
2461925	Molybdenum	101	103	P/P	80 - 120
2461925	Nickel	101	102	P/P	80 - 120
2461925	Selenium	101	101	P/P	80 - 120
2461925	Silver	101	102	P/P	80 - 120
2461925	Thallium	102	103	P/P	80 - 120
2462467	Aluminum	99.2		P	80 - 120
2462467	Antimony	103		P	80 - 120
2462467	Arsenic	101		P	80 - 120
2462467	Barium	103		P	80 - 120
2462467	Beryllium	98.3		P	80 - 120
2462467	Boron	102		P	80 - 120
2462467	Cadmium	102		P	80 - 120
2462467	Cobalt	101		P	80 - 120
2462467	Copper	97.6		P	80 - 120
2462467	Lead	99.2		P	80 - 120
2462467	Manganese	105		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462467	Molybdenum	102		P	80 - 120
2462467	Nickel	99.5		P	80 - 120
2462467	Selenium	101		P	80 - 120
2462467	Silver	99.5		P	80 - 120
2462467	Thallium	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440576

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2463528	Chromium	109	108	P/P	80 - 120
2463555	Chromium	91.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P440677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462635	Chloride	101		P	90 - 110
2463053	Chloride	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P440524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462625	Ammonia-N	95.8	90.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462636	Kjeldahl Nitrogen	113	113	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462581	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P440433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462648	Total-P	108	106	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P440517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462025	Fluoride	103	103	P/P	94 - 106

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2014
Batch ID: P440569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2462625	Organic Carbon	100	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P440311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462369	Color (true)	9.69	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P440323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462609	Turbidity	5.00	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P440359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2461925	Calcium	0.240	Spike	P	0 - 20
2461925	Iron	0.153	Spike	P	0 - 20
2461925	Magnesium	0.357	Spike	P	0 - 20
2461925	Potassium	0.683	Spike	P	0 - 20
2461925	Sodium	0.221	Spike	P	0 - 20
2461925	Strontium	1.30	Spike	P	0 - 20
2461925	Tin	0.312	Spike	P	0 - 20
2461925	Titanium	0.610	Spike	P	0 - 20
2461925	Vanadium	0.499	Spike	P	0 - 20
2461925	Zinc	1.09	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2461925	Aluminum	1.86	Spike	P	0 - 20
2461925	Antimony	1.12	Spike	P	0 - 20
2461925	Arsenic	0.598	Spike	P	0 - 20
2461925	Barium	0.899	Spike	P	0 - 20
2461925	Beryllium	0.632	Spike	P	0 - 20
2461925	Boron	0.818	Spike	P	0 - 20
2461925	Cadmium	3.21	Spike	P	0 - 20
2461925	Cobalt	1.04	Spike	P	0 - 20
2461925	Copper	0.893	Spike	P	0 - 20
2461925	Lead	0.791	Spike	P	0 - 20
2461925	Manganese	1.59	Spike	P	0 - 20
2461925	Molybdenum	1.61	Spike	P	0 - 20
2461925	Nickel	1.17	Spike	P	0 - 20
2461925	Selenium	0.394	Spike	P	0 - 20
2461925	Silver	0.287	Spike	P	0 - 20
2461925	Thallium	1.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P440576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2463528	Chromium	1.15	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P440677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462635	Chloride	1.03	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P440524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462625	Ammonia-N	3.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462636	Kjeldahl Nitrogen	0.369	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462581	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P440433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462648	Total-P	0.916	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P440514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462025	Total Alkalinity	2.66	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P440825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462453	TDS	5.08	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P440517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462025	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2014
Batch ID: P440569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2462625	Organic Carbon	1.03	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: A123770
Included Lab Sample IDs: 2462624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A123773
Included Lab Sample IDs: 2462624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A123819
Included Lab Sample IDs: 2462625

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A123835
Included Lab Sample IDs: 2462630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.7	100	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.2	99.5	P/P	90 - 110
Sodium	94.6	95.3	P/P	90 - 110
Strontium	96.6	97.2	P/P	90 - 110
Tin	103	103	P/P	90 - 110
Titanium	103	103	P/P	90 - 110
Vanadium	99.5	99.9	P/P	90 - 110
Zinc	98.8	99.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A123839
Included Lab Sample IDs: 2462630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	97.4	P/P	90 - 110
Antimony	99.4	98.5	P/P	90 - 110
Arsenic	96.7	96.7	P/P	90 - 110
Barium	99.3	98.6	P/P	90 - 110
Beryllium	97.5	97.7	P/P	90 - 110
Boron	98.6	94.7	P/P	90 - 110
Cadmium	97.3	97.6	P/P	90 - 110
Cobalt	96.1	96.1	P/P	90 - 110
Copper	95.6	95.8	P/P	90 - 110
Lead	96.6	96.5	P/P	90 - 110
Manganese	98.7	98.7	P/P	90 - 110
Molybdenum	97.8	98.3	P/P	90 - 110
Nickel	95.6	96.0	P/P	90 - 110
Selenium	97.1	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A123839

Included Lab Sample IDs: 2462630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	98.7	98.4	P/P	90 - 110
Thallium	99.2	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A123840

Included Lab Sample IDs: 2462625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A123848

Included Lab Sample IDs: 2462624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.1	95.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A123848

Included Lab Sample IDs: 2462624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	105	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A123853

Included Lab Sample IDs: 2462625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	97.8	P/P	90 - 110

Reference Method: SM 5310 B-2014

Run ID: A123872

Included Lab Sample IDs: 2462625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	118	96.2	P/P	70 - 130

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A123886

Included Lab Sample IDs: 2462625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A123908

Included Lab Sample IDs: 2462624

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

Quality Assurance Report

Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A123910

Included Lab Sample IDs: 2462630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	96.7	98.0	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)	101				9.69	
EPA 180.1 Rev. 2.0	Turbidity	104				5.00	
EPA 200.7 Rev. 4.4	Calcium	105	101	100			0.240
	Iron	111	110	110	110		0.153
	Magnesium	112	108	108	103		0.357
	Potassium	102	101	101	102		0.683
	Sodium	102	101	101	101		0.221
	Strontium	98.2	95.6	96.9	95.9		1.30
	Tin	100	98.6	98.9	98.1		0.312
	Titanium	103	102	103	101		0.610
	Vanadium	100	99.3	99.8	99.7		0.499
	Zinc	95.8	92.9	93.9	92.3		1.09
EPA 200.8 Rev. 5.4	Aluminum	104	102	103	99.2		1.86
	Antimony	103	103	104	103		1.12
	Arsenic	101	101	101	101		0.598
	Barium	105	103	104	103		0.899
	Beryllium	94.2	98.0	97.4	98.3		0.632
	Boron	108	107	106	102		0.818
	Cadmium	103	101	105	102		3.21
	Chromium	101	109	108	91.7		1.15
	Cobalt	103	101	102	101		1.04
	Copper	100	98.0	98.9	97.6		0.893
	Lead	100	99.5	100	99.2		0.791
	Manganese	106	105	107	105		1.59
	Molybdenum	100	101	103	102		1.61
	Nickel	102	101	102	99.5		1.17
	Selenium	101	101	101	101		0.394
	Silver	103	101	102	99.5		0.287
	Thallium	101	102	103	103		1.00
EPA 300.0 Rev. 2.1	Chloride	102	101	104		1.03	
EPA 350.1 Rev. 2.0	Ammonia-N	98.4	95.8	90.6			3.52
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	113	113			0.369
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	105	108	106			0.916
SM 2320 B-2011	Total Alkalinity	97.0				2.66	
SM 2540 C-2015	TDS	95.2				5.08	
SM 2540 D-2015	TSS	97.6					
SM 4500-F- C-2011	Fluoride	105	103	103			0.0
SM 5310 B-2014	Organic Carbon	98.4	100	98.8			1.03

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2462624
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2462624
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2462630
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2462630
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2462624
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2462625
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2462625
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2462625

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2462625
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2462624
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2462630
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2462624
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2462624
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2462624
SM 5310 B-2014	Nonpurgeable Organic Carbon in aqueous matrices	2462625

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	01/23/2024			01/23/2024 15:45	Anna M. Plaviak	2462624
EPA 180.1 Rev. 2.0	01/23/2024			01/23/2024 14:58	Dipa Joshi	2462624
EPA 200.7 Rev. 4.4	01/23/2024	01/24/2024 12:50	George D Taylor	01/25/2024 16:15	Chase Roberts	2462630
EPA 200.8 Rev. 5.4	01/23/2024	01/24/2024 12:50	George D Taylor	01/25/2024 22:38	Emily M Philpot	2462630
	01/23/2024	01/29/2024 12:10	George D Taylor	01/30/2024 18:27	Emily M Philpot	2462630
EPA 300.0 Rev. 2.1	01/23/2024			01/30/2024 05:55	James L Waggeberby	2462624
EPA 350.1 Rev. 2.0	01/23/2024			01/25/2024 13:44	Ping Hua	2462625
EPA 351.2 Rev. 2.0	01/23/2024	01/26/2024 11:36	Ping Hua	01/29/2024 14:49	Samantha L Bates	2462625
EPA 353.2 Rev. 2.0	01/23/2024			01/24/2024 13:12	Fadila Guebre	2462625
EPA 365.1 Rev. 2.0	01/23/2024	01/25/2024 11:22	Adam P Silver	01/26/2024 10:57	Elise M. Gillis	2462625
SM 2320 B-2011	01/23/2024			01/26/2024 08:26	Dale L. Simmons	2462624
SM 2340 B-2011	01/23/2024			01/25/2024 16:15	Chase Roberts	2462630
SM 2540 C-2015	01/23/2024			01/26/2024 15:06	Yijie Li	2462624
SM 2540 D-2015	01/23/2024			01/26/2024 15:06	Yijie Li	2462624
SM 4500-F- C-2011	01/23/2024			01/26/2024 08:26	Dale L. Simmons	2462624
SM 5310 B-2014	01/23/2024			01/26/2024 04:57	Khloe J Berg	2462625