

Chemical Analysis Report

NE-DIST-2024-03-21-02

Florida DEP Laboratory
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DOH Accreditation E31780

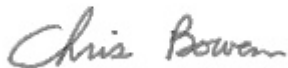
Event Description: **Suwannee North 2024**
Request ID: **RQ-2024-03-18-05**
Customer: **NE-DIST**
Project ID: **SMP**

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

Date Certified: 28-MAR-2024 09:40



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 group are included in this report: Metals.

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: DEEP CREEK AT HYWY 441

Collection Date/Time: 03/20/2024 11:00

Field ID: 21010051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2476933	EPA 200.7 Rev. 4.4	Calcium	2.39		mg/L	P443200	
		Iron	910		ug/L	P443200	
		Magnesium	1.0		mg/L	P443200	
		Potassium	0.30	U	mg/L	P443200	
		Sodium	3.3		mg/L	P443200	
		Strontium	6.5	I	ug/L	P443200	
		Tin	3.0	U	ug/L	P443200	
		Titanium	1.9	I	ug/L	P443200	
		Vanadium	2.0	U	ug/L	P443200	
		Zinc	18	I	ug/L	P443200	
	EPA 200.8 Rev. 5.4	Aluminum	455		ug/L	P443200	
		Antimony	0.050	U	ug/L	P443200	
		Arsenic	0.51		ug/L	P443200	
		Barium	6.25		ug/L	P443200	
		Beryllium	0.027	I	ug/L	P443200	
		Boron	13.1		ug/L	P443200	
		Cadmium	0.020	U	ug/L	P443200	
		Chromium	0.56	I	ug/L	P443200	
		Cobalt	0.211		ug/L	P443200	
		Copper	0.40	U	ug/L	P443200	
	SM 2340 B-2011	Lead	0.50		ug/L	P443200	
		Manganese	8.17		ug/L	P443200	
		Molybdenum	0.15	U	ug/L	P443200	
		Nickel	0.53	I	ug/L	P443200	
		Selenium	0.20	U	ug/L	P443200	
		Silver	0.010	U	ug/L	P443200	
		Thallium	0.10	U	ug/L	P443200	
		Hardness	10.1		mg/L	P443200	

Ref. Method and Comment:
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 03/26/2024.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443200

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: P443200

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	105		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	103		P	85 - 115
Sodium	105		P	85 - 115
Strontium	102		P	85 - 115
Tin	101		P	85 - 115
Titanium	100		P	85 - 115
Vanadium	102		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443200

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	104		P	85 - 115
Barium	105		P	85 - 115
Beryllium	99.5		P	85 - 115
Boron	106		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	105		P	85 - 115
Cobalt	106		P	85 - 115
Copper	103		P	85 - 115
Lead	97.0		P	85 - 115
Manganese	103		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	103		P	85 - 115
Selenium	105		P	85 - 115
Silver	103		P	85 - 115
Thallium	99.3		P	85 - 115

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476772	Calcium	99.6		P	80 - 120
2476772	Iron	104	104	P/P	80 - 120
2476772	Magnesium	104	105	P/P	80 - 120
2476772	Potassium	102	101	P/P	80 - 120
2476772	Sodium	103	102	P/P	80 - 120
2476772	Strontium	99.8	100	P/P	80 - 120
2476772	Tin	99.0	99.4	P/P	80 - 120
2476772	Titanium	101	102	P/P	80 - 120
2476772	Vanadium	104	106	P/P	80 - 120
2476772	Zinc	103	105	P/P	80 - 120
2476910	Calcium	104		P	80 - 120
2476910	Iron	103		P	80 - 120
2476910	Magnesium	105		P	80 - 120
2476910	Potassium	97.1		P	80 - 120
2476910	Sodium	99.6		P	80 - 120
2476910	Strontium	99.3		P	80 - 120
2476910	Tin	99.5		P	80 - 120
2476910	Titanium	98.1		P	80 - 120
2476910	Vanadium	101		P	80 - 120
2476910	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476772	Aluminum	103	102	P/P	80 - 120
2476772	Antimony	105	106	P/P	80 - 120
2476772	Arsenic	103	103	P/P	80 - 120
2476772	Barium	104	105	P/P	80 - 120
2476772	Beryllium	103	101	P/P	80 - 120
2476772	Boron	105	109	P/P	80 - 120
2476772	Cadmium	105	105	P/P	80 - 120
2476772	Chromium	105	105	P/P	80 - 120
2476772	Cobalt	104	102	P/P	80 - 120
2476772	Copper	98.4	99.0	P/P	80 - 120
2476772	Lead	96.5	97.2	P/P	80 - 120
2476772	Manganese	103	102	P/P	80 - 120
2476772	Molybdenum	104	104	P/P	80 - 120
2476772	Nickel	100	100	P/P	80 - 120
2476772	Selenium	103	105	P/P	80 - 120
2476772	Silver	102	102	P/P	80 - 120
2476772	Thallium	100	102	P/P	80 - 120
2476910	Aluminum	106		P	80 - 120
2476910	Antimony	104		P	80 - 120
2476910	Arsenic	103		P	80 - 120
2476910	Barium	105		P	80 - 120
2476910	Beryllium	104		P	80 - 120
2476910	Boron	111		P	80 - 120
2476910	Cadmium	103		P	80 - 120
2476910	Chromium	105		P	80 - 120
2476910	Cobalt	105		P	80 - 120
2476910	Copper	103		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2476910	Lead	98.6		P	80 - 120
2476910	Manganese	107		P	80 - 120
2476910	Molybdenum	103		P	80 - 120
2476910	Nickel	104		P	80 - 120
2476910	Selenium	102		P	80 - 120
2476910	Silver	102		P	80 - 120
2476910	Thallium	102		P	80 - 120

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P443200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476772	Calcium	0.278	Spike	P	0 - 20
2476772	Iron	0.154	Spike	P	0 - 20
2476772	Magnesium	0.338	Spike	P	0 - 20
2476772	Potassium	0.250	Spike	P	0 - 20
2476772	Sodium	0.285	Spike	P	0 - 20
2476772	Strontium	0.421	Spike	P	0 - 20
2476772	Tin	0.491	Spike	P	0 - 20
2476772	Titanium	0.186	Spike	P	0 - 20
2476772	Vanadium	1.45	Spike	P	0 - 20
2476772	Zinc	0.822	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P443200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2476772	Aluminum	1.08	Spike	P	0 - 20
2476772	Antimony	0.637	Spike	P	0 - 20
2476772	Arsenic	0.163	Spike	P	0 - 20
2476772	Barium	0.905	Spike	P	0 - 20
2476772	Beryllium	1.80	Spike	P	0 - 20
2476772	Boron	2.70	Spike	P	0 - 20
2476772	Cadmium	0.250	Spike	P	0 - 20
2476772	Chromium	0.162	Spike	P	0 - 20
2476772	Cobalt	1.69	Spike	P	0 - 20
2476772	Copper	0.545	Spike	P	0 - 20
2476772	Lead	0.743	Spike	P	0 - 20
2476772	Manganese	0.699	Spike	P	0 - 20
2476772	Molybdenum	0.565	Spike	P	0 - 20
2476772	Nickel	0.0622	Spike	P	0 - 20
2476772	Selenium	2.18	Spike	P	0 - 20
2476772	Silver	0.402	Spike	P	0 - 20
2476772	Thallium	1.71	Spike	P	0 - 20

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

Quality Assurance Report

Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A124980

Included Lab Sample IDs: 2476933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	104	P/P	90 - 110
Antimony	99.8	101	P/P	90 - 110
Arsenic	99.8	99.8	P/P	90 - 110
Barium	101	102	P/P	90 - 110
Beryllium	101	102	P/P	90 - 110
Boron	106	107	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Chromium	99.1	99.6	P/P	90 - 110
Cobalt	101	101	P/P	90 - 110
Copper	99.2	98.9	P/P	90 - 110
Lead	96.7	96.8	P/P	90 - 110
Manganese	99.6	99.9	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Nickel	98.7	98.6	P/P	90 - 110
Selenium	103	102	P/P	90 - 110
Silver	100	100	P/P	90 - 110
Thallium	102	103	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A125008

Included Lab Sample IDs: 2476933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.2	100	P/P	90 - 110
Iron	99.5	101	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Potassium	98.9	99.6	P/P	90 - 110
Sodium	96.5	97.5	P/P	90 - 110
Strontium	101	101	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Titanium	99.1	99.2	P/P	90 - 110
Vanadium	100	101	P/P	90 - 110
Zinc	101	101	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				
EPA 200.7 Rev. 4.4	Calcium	100	99.6	104			0.278
	Iron	105	104	104	103		0.154
	Magnesium	108	104	105	105		0.338
	Potassium	103	102	101	97.1		0.250
	Sodium	105	103	102	99.6		0.285
	Strontium	102	99.8	100	99.3		0.421
	Tin	101	99.0	99.4	99.5		0.491
	Titanium	100	101	102	98.1		0.186
	Vanadium	102	106	101	104		1.45
	Zinc	106	103	105	103		0.822
EPA 200.8 Rev. 5.4	Aluminum	104	103	102	106		1.08
	Antimony	104	105	106	104		0.637
	Arsenic	104	103	103	103		0.163
	Barium	105	104	105	105		0.905
	Beryllium	99.5	103	101	104		1.80
	Boron	106	105	109	111		2.70
	Cadmium	103	105	105	103		0.250
	Chromium	105	105	105	105		0.162
	Cobalt	106	104	102	105		1.69
	Copper	103	98.4	99.0	103		0.545
	Lead	97.0	96.5	97.2	98.6		0.743
	Manganese	103	103	102	107		0.699
	Molybdenum	102	104	104	103		0.565
	Nickel	103	100	100	104		0.0622
	Selenium	105	103	105	102		2.18
	Silver	103	102	102	102		0.402
	Thallium	99.3	100	102	102		1.71

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2476933
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2476933
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2476933

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	03/21/2024	03/22/2024 13:10	George D Taylor	03/26/2024 19:08	Chase Roberts	2476933
EPA 200.8 Rev. 5.4	03/21/2024	03/22/2024 13:10	George D Taylor	03/25/2024 17:49	Emily M Philpot	2476933
SM 2340 B-2011	03/21/2024			03/26/2024 19:08	Chase Roberts	2476933