

Chemical Analysis Report

NE-DIST-2022-04-12-03

Florida Department of Environmental Protection
Central Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

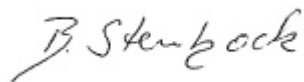
Event Description: **Gainesville make up**
Request ID: **RQ-2022-04-04-64**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 26-APR-2022 10:25



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: Little Hatchet CR West at CR222

Collection Date/Time: 04/11/2022 11:00

Field ID: G1NE0947

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2318499	EPA 200.7 Rev. 4.4	Calcium	24.5		mg/L	P412351	
		Iron	900		ug/L	P412351	
		Magnesium	4.04		mg/L	P412351	
		Potassium	0.67	I	mg/L	P412351	
		Sodium	5.9		mg/L	P412351	
		Strontium	52.0		ug/L	P412351	
		Tin	3.0	U	ug/L	P412351	
		Titanium	2.1	I	ug/L	P412351	
		Vanadium	2.0	U	ug/L	P412351	
		Zinc	5.0	U	ug/L	P412351	
	EPA 200.8 Rev. 5.4	Aluminum	387		ug/L	P412351	
		Antimony	0.11	I	ug/L	P412351	
		Arsenic	0.76		ug/L	P412351	
		Barium	12.0		ug/L	P412351	
		Beryllium	0.042		ug/L	P412351	
		Boron**	21.1		ug/L	P412351	
		Cadmium	0.020	U	ug/L	P412351	
		Chromium	1.1	I	ug/L	P412351	
		Cobalt	0.203		ug/L	P412351	
		Copper	0.52	I	ug/L	P412351	
		Lead	0.51		ug/L	P412351	
		Manganese	17.2		ug/L	P412351	
		Molybdenum	0.41	I	ug/L	P412351	
		Nickel	0.69	I	ug/L	P412351	
		Selenium	0.20	U	ug/L	P412351	
		Silver	0.010	U	ug/L	P412351	
		Thallium	0.10	U	ug/L	P412351	
	SM 2340 B-2011	Hardness	77.7		mg/L	P412351	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for chromium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Little Hatchet CR 200m downstream of NE 15th St. **Collection Date/Time: 04/11/2022 11:30**

Field ID: G1NE0950

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2318500	EPA 200.7 Rev. 4.4	Calcium	16.3		mg/L	P412351	
		Iron	2.04E+03		ug/L	P412351	
		Magnesium	2.74		mg/L	P412351	
		Potassium	0.43	I	mg/L	P412351	
		Sodium	5.2		mg/L	P412351	
		Strontium	31.8		ug/L	P412351	
		Tin	3.0	U	ug/L	P412351	
		Titanium	2.5	I	ug/L	P412351	
		Vanadium	2.5	I	ug/L	P412351	
		Zinc	5.0	U	ug/L	P412351	
	EPA 200.8 Rev. 5.4	Aluminum	680		ug/L	P412351	
		Antimony	0.082	I	ug/L	P412351	
		Arsenic	1.16		ug/L	P412351	
		Barium	13.6		ug/L	P412351	
		Beryllium	0.070		ug/L	P412351	
		Boron**	18.9		ug/L	P412351	
		Cadmium	0.020	U	ug/L	P412351	
		Chromium	1.6	I	ug/L	P412351	
		Cobalt	0.352		ug/L	P412351	
		Copper	0.40	U	ug/L	P412351	
		Lead	0.51		ug/L	P412351	
		Manganese	18.9		ug/L	P412351	
		Molybdenum	0.23	I	ug/L	P412351	
		Nickel	0.98	I	ug/L	P412351	
		Selenium	0.24	I	ug/L	P412351	
		Silver	0.010	U	ug/L	P412351	
		Thallium	0.10	U	ug/L	P412351	
	SM 2340 B-2011	Hardness	52.0		mg/L	P412351	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for chromium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412351

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: P412351

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: P412351

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	107		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	105		P	85 - 115
Sodium	105		P	85 - 115
Strontium	104		P	85 - 115
Tin	101		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	95.2		P	85 - 115
Zinc	97.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412351

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	104		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	105		P	85 - 115
Barium	107		P	85 - 115
Beryllium	104		P	85 - 115
Boron	109		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	101		P	85 - 115
Cobalt	106		P	85 - 115
Copper	101		P	85 - 115
Lead	104		P	85 - 115
Manganese	101		P	85 - 115
Molybdenum	104		P	85 - 115
Nickel	104		P	85 - 115
Selenium	101		P	85 - 115
Silver	104		P	85 - 115
Thallium	107		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2318392	Calcium	106		P	80 - 120
2318392	Iron	108	108	P/P	80 - 120
2318392	Magnesium	108	107	P/P	80 - 120
2318392	Potassium	106	105	P/P	80 - 120
2318392	Sodium	105		P	80 - 120
2318392	Strontium	104	106	P/P	80 - 120
2318392	Tin	97.8	102	P/P	80 - 120
2318392	Titanium	100	102	P/P	80 - 120
2318392	Vanadium	95.7	97.1	P/P	80 - 120
2318392	Zinc	96.3	97.9	P/P	80 - 120
2318567	Calcium	103		P	80 - 120
2318567	Iron	102		P	80 - 120
2318567	Magnesium	108		P	80 - 120
2318567	Potassium	108		P	80 - 120
2318567	Sodium	108		P	80 - 120
2318567	Strontium	106		P	80 - 120
2318567	Tin	102		P	80 - 120
2318567	Titanium	104		P	80 - 120
2318567	Vanadium	98.8		P	80 - 120
2318567	Zinc	98.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2318392	Aluminum	105	102	P/P	80 - 120
2318392	Antimony	106	106	P/P	80 - 120
2318392	Arsenic	105	104	P/P	80 - 120
2318392	Barium	107	106	P/P	80 - 120
2318392	Beryllium	100	99.3	P/P	80 - 120
2318392	Boron	106	105	P/P	80 - 120
2318392	Cadmium	105	107	P/P	80 - 120
2318392	Chromium	103	102	P/P	80 - 120
2318392	Cobalt	106	104	P/P	80 - 120
2318392	Copper	100	98.9	P/P	80 - 120
2318392	Lead	106	105	P/P	80 - 120
2318392	Manganese	104	101	P/P	80 - 120
2318392	Molybdenum	107	106	P/P	80 - 120
2318392	Nickel	101	100	P/P	80 - 120
2318392	Selenium	100	101	P/P	80 - 120
2318392	Silver	105	103	P/P	80 - 120
2318392	Thallium	111	111	P/P	80 - 120
2318567	Aluminum	104		P	80 - 120
2318567	Antimony	107		P	80 - 120
2318567	Arsenic	106		P	80 - 120
2318567	Barium	110		P	80 - 120
2318567	Beryllium	104		P	80 - 120
2318567	Boron	110		P	80 - 120
2318567	Cadmium	104		P	80 - 120
2318567	Cobalt	106		P	80 - 120
2318567	Copper	98.4		P	80 - 120
2318567	Lead	106		P	80 - 120

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P412351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2318567	Manganese	101		P	80 - 120
2318567	Molybdenum	83.5		P	80 - 120
2318567	Nickel	101		P	80 - 120
2318567	Selenium	103		P	80 - 120
2318567	Silver	105		P	80 - 120
2318567	Thallium	110		P	80 - 120

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P412351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2318392	Calcium	0.844	Spike	P	0 - 20
2318392	Iron	0.225	Spike	P	0 - 20
2318392	Magnesium	0.267	Spike	P	0 - 20
2318392	Potassium	0.909	Spike	P	0 - 20
2318392	Sodium	0.801	Spike	P	0 - 20
2318392	Strontium	1.27	Spike	P	0 - 20
2318392	Tin	4.07	Spike	P	0 - 20
2318392	Titanium	2.01	Spike	P	0 - 20
2318392	Vanadium	1.38	Spike	P	0 - 20
2318392	Zinc	1.62	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P412351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2318392	Aluminum	1.87	Spike	P	0 - 20
2318392	Antimony	0.101	Spike	P	0 - 20
2318392	Arsenic	0.411	Spike	P	0 - 20
2318392	Barium	0.673	Spike	P	0 - 20
2318392	Beryllium	0.966	Spike	P	0 - 20
2318392	Boron	0.864	Spike	P	0 - 20
2318392	Cadmium	2.52	Spike	P	0 - 20
2318392	Chromium	0.880	Spike	P	0 - 20
2318392	Cobalt	1.88	Spike	P	0 - 20
2318392	Copper	1.30	Spike	P	0 - 20
2318392	Lead	1.08	Spike	P	0 - 20
2318392	Manganese	1.98	Spike	P	0 - 20
2318392	Molybdenum	0.595	Spike	P	0 - 20
2318392	Nickel	0.999	Spike	P	0 - 20
2318392	Selenium	0.795	Spike	P	0 - 20
2318392	Silver	2.01	Spike	P	0 - 20
2318392	Thallium	0.287	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: A111511

Included Lab Sample IDs: 2318499, 2318500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	107	108	P/P	90 - 110
Antimony	106	107	P/P	90 - 110
Arsenic	104	106	P/P	90 - 110
Barium	104	104	P/P	90 - 110
Beryllium	102	103	P/P	90 - 110
Cadmium	106	107	P/P	90 - 110
Chromium	103	104	P/P	90 - 110
Cobalt	104	106	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Manganese	103	104	P/P	90 - 110
Molybdenum	105	105	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Selenium	103	105	P/P	90 - 110
Silver	107	107	P/P	90 - 110
Thallium	105	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A111537

Included Lab Sample IDs: 2318499, 2318500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	95.3	99.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A111583

Included Lab Sample IDs: 2318499, 2318500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	103	P/P	90 - 110
Calcium	103	102	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Iron	104	102	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Potassium	104	106	P/P	90 - 110
Potassium	106	104	P/P	90 - 110
Sodium	102	103	P/P	90 - 110
Sodium	103	101	P/P	90 - 110
Strontium	103	104	P/P	90 - 110
Strontium	104	102	P/P	90 - 110
Tin	96.6	98.4	P/P	90 - 110
Tin	98.4	96.0	P/P	90 - 110
Titanium	100	101	P/P	90 - 110
Titanium	101	100	P/P	90 - 110
Vanadium	100	100	P/P	90 - 110
Vanadium	99.9	100	P/P	90 - 110
Zinc	97.1	98.1	P/P	90 - 110
Zinc	98.1	98.1	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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		
EPA 200.7 Rev. 4.4	Calcium	106	106	103		0.844	
	Iron	107	108	108	102	0.225	
	Magnesium	108	108	107	108	0.267	
	Potassium	105	106	105	108	0.909	
	Sodium	105	105	108		0.801	
	Strontium	104	104	106	106	1.27	
	Tin	101	97.8	102	102	4.07	
	Titanium	102	100	102	104	2.01	
	Vanadium	95.2	95.7	97.1	98.8	1.38	
	Zinc	97.8	96.3	97.9	98.5	1.62	
EPA 200.8 Rev. 5.4	Aluminum	104	104	105	102	1.87	
	Antimony	104	107	106	106	0.101	
	Arsenic	105	106	105	104	0.411	
	Barium	107	110	107	106	0.673	
	Beryllium	104	104	100	99.3	0.966	
	Boron	109	106	105	110	0.864	
	Cadmium	103	104	105	107	2.52	
	Chromium	101	103	102		0.880	
	Cobalt	106	106	106	104	1.88	
	Copper	101	98.4	100	98.9	1.30	
	Lead	104	106	106	105	1.08	
	Manganese	101	101	104	101	1.98	
	Molybdenum	104	83.5	107	106	0.595	
	Nickel	104	101	101	100	0.999	
	Selenium	101	103	100	101	0.795	
	Silver	104	105	105	103	2.01	
	Thallium	107	110	111	111	0.287	

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	2318499, 2318500
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2318499, 2318500
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2318499, 2318500

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	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/21/2022 00:55	Josef B Mick	2318499
	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/21/2022 01:34	Josef B Mick	2318500
EPA 200.8 Rev. 5.4	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/15/2022 17:41	Alexander Thompson	2318499
	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/15/2022 17:51	Alexander Thompson	2318500
	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/18/2022 12:18	Alexander Thompson	2318499
	04/12/2022	04/14/2022 10:32	Megan Whitefoot	04/18/2022 12:24	Alexander Thompson	2318500
SM 2340 B-2011	04/12/2022			04/21/2022 00:55	Josef B Mick	2318499
	04/12/2022			04/21/2022 01:34	Josef B Mick	2318500