Chemical Analysis Report

NW-DIST-2023-05-04-02

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

Event Description: **Milton South Run**
Request ID: **RQ-2023-05-01-49**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government Street
Suite 208
Pensacola, FL 32502-5794
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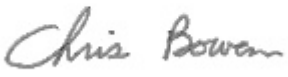
Certified by: Chris Bowen, Environmental Administrator

Date Certified: 18-MAY-2023 11:51



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: SANDY POINT CREEK BELOW SANDY POINT STREET **Collection Date/Time: 05/03/2023 11:25**

Field ID: G4NW0080 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2405748	EPA 200.7 Rev. 4.4	Calcium	6.27		mg/L	P429542	
		Iron	4.97E+03		ug/L	P429542	
		Magnesium	1.09		mg/L	P429542	
		Potassium	1.4		mg/L	P429542	
		Sodium	7.2		mg/L	P429542	
		Strontium	17.2		ug/L	P429542	
		Tin	3.0	U	ug/L	P429542	
		Titanium	51.0		ug/L	P429542	
		Vanadium	11.1		ug/L	P429542	
		Zinc	18	I	ug/L	P429542	
	EPA 200.8 Rev. 5.4	Aluminum	5.69E+03		ug/L	P429542	
		Antimony	0.21		ug/L	P429542	
		Arsenic	2.15		ug/L	P429542	
		Barium	16.6		ug/L	P429542	
		Beryllium	0.077		ug/L	P429542	
		Boron	46.4		ug/L	P429542	
		Cadmium	0.021	I	ug/L	P429542	
		Chromium	6.1		ug/L	P429542	
		Cobalt	0.560		ug/L	P429542	
		Copper	2.77		ug/L	P429542	
		Lead	3.70		ug/L	P429542	
		Manganese	29.1		ug/L	P429542	
		Molybdenum	0.34	I	ug/L	P429542	
		Nickel	1.6	I	ug/L	P429542	
		Selenium	0.26	I	ug/L	P429542	
		Silver	0.015	I	ug/L	P429542	
		Thallium	0.10	U	ug/L	P429542	
	SM 2340 B-2011	Hardness	20.1		mg/L	P429542	

Ref. Method and Comment:
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 05/10/2023.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429542

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: P429542

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: P429542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	80 - 120
Iron	100		P	80 - 120
Magnesium	101		P	80 - 120
Potassium	100		P	80 - 120
Sodium	99.5		P	80 - 120
Strontium	102		P	80 - 120
Tin	102		P	80 - 120
Titanium	100		P	80 - 120
Vanadium	99.7		P	80 - 120
Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	108		P	85 - 115
Arsenic	102		P	85 - 115
Barium	105		P	85 - 115
Beryllium	98.9		P	85 - 115
Boron	103		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	98.6		P	85 - 115
Cobalt	103		P	85 - 115
Copper	98.5		P	85 - 115
Lead	105		P	85 - 115
Manganese	99.7		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	98.0		P	85 - 115
Selenium	102		P	85 - 115
Silver	106		P	85 - 115
Thallium	101		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405704	Calcium	99.2		P	80 - 120
2405704	Iron	105	103	P/P	80 - 120
2405704	Magnesium	104	102	P/P	80 - 120
2405704	Potassium	104	103	P/P	80 - 120
2405704	Sodium	98.9		P	80 - 120
2405704	Strontium	104	103	P/P	80 - 120
2405704	Tin	101	99.4	P/P	80 - 120
2405704	Titanium	101	102	P/P	80 - 120
2405704	Vanadium	101	102	P/P	80 - 120
2405704	Zinc	104	103	P/P	80 - 120
2406025	Calcium	99.2		P	80 - 120
2406025	Iron	102		P	80 - 120
2406025	Magnesium	100		P	80 - 120
2406025	Potassium	100		P	80 - 120
2406025	Sodium	98.9		P	80 - 120
2406025	Strontium	101		P	80 - 120
2406025	Tin	97.8		P	80 - 120
2406025	Titanium	101		P	80 - 120
2406025	Vanadium	100		P	80 - 120
2406025	Zinc	98.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405704	Aluminum	98.9	100	P/P	80 - 120
2405704	Antimony	107	107	P/P	80 - 120
2405704	Arsenic	102	101	P/P	80 - 120
2405704	Barium	103	104	P/P	80 - 120
2405704	Beryllium	99.1	98.6	P/P	80 - 120
2405704	Boron	100	102	P/P	80 - 120
2405704	Cadmium	103	103	P/P	80 - 120
2405704	Chromium	97.5	97.4	P/P	80 - 120
2405704	Cobalt	101	101	P/P	80 - 120
2405704	Copper	96.8	96.6	P/P	80 - 120
2405704	Lead	104	104	P/P	80 - 120
2405704	Manganese	97.9	97.1	P/P	80 - 120
2405704	Molybdenum	103	101	P/P	80 - 120
2405704	Nickel	97.5	96.8	P/P	80 - 120
2405704	Selenium	102	101	P/P	80 - 120
2405704	Silver	103	102	P/P	80 - 120
2405704	Thallium	103	103	P/P	80 - 120
2406025	Aluminum	98.8		P	80 - 120
2406025	Antimony	107		P	80 - 120
2406025	Arsenic	100		P	80 - 120
2406025	Barium	103		P	80 - 120
2406025	Beryllium	96.8		P	80 - 120
2406025	Boron	103		P	80 - 120
2406025	Cadmium	101		P	80 - 120
2406025	Chromium	96.8		P	80 - 120
2406025	Cobalt	101		P	80 - 120
2406025	Copper	96.2		P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2406025	Lead	105		P	80 - 120
2406025	Manganese	98.0		P	80 - 120
2406025	Molybdenum	100		P	80 - 120
2406025	Nickel	96.5		P	80 - 120
2406025	Selenium	101		P	80 - 120
2406025	Silver	104		P	80 - 120
2406025	Thallium	104		P	80 - 120

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P429542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405704	Calcium	1.17	Spike	P	0 - 20
2405704	Iron	1.58	Spike	P	0 - 20
2405704	Magnesium	1.48	Spike	P	0 - 20
2405704	Potassium	0.505	Spike	P	0 - 20
2405704	Sodium	0.341	Spike	P	0 - 20
2405704	Strontium	1.30	Spike	P	0 - 20
2405704	Tin	1.73	Spike	P	0 - 20
2405704	Titanium	0.741	Spike	P	0 - 20
2405704	Vanadium	0.432	Spike	P	0 - 20
2405704	Zinc	0.175	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P429542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405704	Aluminum	1.15	Spike	P	0 - 20
2405704	Antimony	0.0221	Spike	P	0 - 20
2405704	Arsenic	0.678	Spike	P	0 - 20
2405704	Barium	0.369	Spike	P	0 - 20
2405704	Beryllium	0.549	Spike	P	0 - 20
2405704	Boron	0.948	Spike	P	0 - 20
2405704	Cadmium	0.285	Spike	P	0 - 20
2405704	Chromium	0.202	Spike	P	0 - 20
2405704	Cobalt	0.0975	Spike	P	0 - 20
2405704	Copper	0.165	Spike	P	0 - 20
2405704	Lead	0.260	Spike	P	0 - 20
2405704	Manganese	0.716	Spike	P	0 - 20
2405704	Molybdenum	1.46	Spike	P	0 - 20
2405704	Nickel	0.800	Spike	P	0 - 20
2405704	Selenium	1.12	Spike	P	0 - 20
2405704	Silver	0.598	Spike	P	0 - 20
2405704	Thallium	0.226	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: A119053
Included Lab Sample IDs: 2405748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	105	106	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Barium	100	102	P/P	90 - 110
Beryllium	98.3	97.1	P/P	90 - 110
Boron	98.3	98.9	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Chromium	99.6	97.3	P/P	90 - 110
Cobalt	103	102	P/P	90 - 110
Copper	96.1	96.8	P/P	90 - 110
Lead	103	103	P/P	90 - 110
Manganese	101	99.0	P/P	90 - 110
Molybdenum	100	101	P/P	90 - 110
Nickel	98.0	97.1	P/P	90 - 110
Selenium	103	103	P/P	90 - 110
Silver	104	105	P/P	90 - 110
Thallium	102	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A119069
Included Lab Sample IDs: 2405748

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A119091
Included Lab Sample IDs: 2405748

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.2	97.9	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Magnesium	102	99.5	P/P	90 - 110
Potassium	102	101	P/P	90 - 110
Sodium	99.5	99.2	P/P	90 - 110
Strontium	102	103	P/P	90 - 110
Tin	98.1	97.6	P/P	90 - 110
Titanium	99.5	99.6	P/P	90 - 110
Vanadium	98.7	98.3	P/P	90 - 110
Zinc	96.2	95.6	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
EPA 200.7 Rev. 4.4	Calcium	100	99.2	99.2				1.17
	Iron	100	105	103	102			1.58
	Magnesium	101	104	102	100			1.48
	Potassium	100	104	103	100			0.505
	Sodium	99.5	98.9	98.9				0.341
	Strontium	102	104	103	101			1.30
	Tin	102	101	99.4	97.8			1.73
	Titanium	100	101	102	101			0.741
	Vanadium	99.7	101	102	100			0.432
	Zinc	102	104	103	98.7			0.175
EPA 200.8 Rev. 5.4	Aluminum	102	98.9	100	98.8			1.15
	Antimony	108	107	107	107			0.0221
	Arsenic	102	102	101	100			0.678
	Barium	105	103	104	103			0.369
	Beryllium	98.9	99.1	98.6	96.8			0.549
	Boron	103	100	102	103			0.948
	Cadmium	102	103	103	101			0.285
	Chromium	98.6	97.5	97.4	96.8			0.202
	Cobalt	103	101	101	101			0.0975
	Copper	98.5	96.8	96.6	96.2			0.165
	Lead	105	104	104	105			0.260
	Manganese	99.7	97.9	97.1	98.0			0.716
	Molybdenum	101	103	101	100			1.46
	Nickel	98.0	97.5	96.8	96.5			0.800
	Selenium	102	102	101	101			1.12
	Silver	106	103	102	104			0.598
	Thallium	101	103	103	104			0.226

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	2405748
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2405748
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2405748

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	05/04/2023	05/08/2023 12:00	George D Taylor	05/10/2023 22:02	McKinley C Carter	2405748
EPA 200.8 Rev. 5.4	05/04/2023	05/08/2023 12:00	George D Taylor	05/09/2023 15:59	Emily M Philpot	2405748
	05/04/2023	05/08/2023 12:00	George D Taylor	05/10/2023 13:26	Emily M Philpot	2405748
SM 2340 B-2011	05/04/2023			05/10/2023 22:02	McKinley C Carter	2405748