

Chemical Analysis Report

NW-DIST-2023-12-06-01

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

Event Description: **Eastern Shipbuilding**
Request ID: **RQ-2023-12-04-58**
Customer: **NW-DIST**
Project ID: **SPPROJECTS**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
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Certified by: Colin Wright, Program Administrator

Date Certified: 22-DEC-2023 10:02

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a white rectangular background.

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: West side of Eastern Ship Building

Collection Date/Time: 12/05/2023 13:40

Field ID: WG3NW9999				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2455018	EPA 6020B	Arsenic	0.379		mg/Kg	P438707	
		Barium	0.95		mg/Kg	P438707	
		Cadmium	0.0096	U	mg/Kg	P438707	
		Chromium	1.75		mg/Kg	P438707	
		Lead	0.84		mg/Kg	P438707	
		Selenium	0.096	U	mg/Kg	P438707	
2455026	SM 2540 G (20th)	Silver	0.0036	U	mg/Kg	P438707	
		% Solid	74.3	A	%	P438703	

Sample Location: West side of East bay

Collection Date/Time: 12/05/2023 12:30

Field ID: BG3NW0000

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2455019	EPA 6020B	Arsenic	0.259		mg/Kg	P438707	
		Barium	0.56		mg/Kg	P438707	
		Cadmium	0.0092	U	mg/Kg	P438707	
		Chromium	1.26		mg/Kg	P438707	
		Lead	0.83		mg/Kg	P438707	
		Selenium	0.092	U	mg/Kg	P438707	
2455027	SM 2540 G (20th)	Silver	0.0035	U	mg/Kg	P438707	
		% Solid	74.4		%	P438703	

Sample Location: East side of Eastern Ship Building

Collection Date/Time: 12/05/2023 14:20

Field ID: EG3NW9998				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2455020	EPA 6020B	Arsenic	0.990		mg/Kg	P438707	
		Barium	1.34		mg/Kg	P438707	
		Cadmium	0.0097	U	mg/Kg	P438707	
		Chromium	2.68		mg/Kg	P438707	
		Lead	1.28		mg/Kg	P438707	
		Selenium	0.097	U	mg/Kg	P438707	
2455028	SM 2540 G (20th)	Silver	0.0036	U	mg/Kg	P438707	
		% Solid	71.8		%	P438703	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 6020B
Batch ID: P438707

Component	Result	Code	Units
Arsenic	0.014	U	mg/Kg
Barium	0.048	U	mg/Kg
Cadmium	0.0096	U	mg/Kg
Chromium	0.24	U	mg/Kg
Lead	0.096	U	mg/Kg
Selenium	0.096	U	mg/Kg
Silver	0.0036	U	mg/Kg

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 6020B
Batch ID: P438707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.7		P	80 - 120
Barium	102		P	80 - 120
Cadmium	98.7		P	80 - 120
Chromium	97.6		P	80 - 120
Lead	99.3		P	80 - 120
Selenium	96.9		P	80 - 120
Silver	103		P	80 - 120

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 6020B
Batch ID: P438707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2455018	Arsenic	93.8	92.8	P/P	75 - 125
2455018	Barium	100	99.4	P/P	75 - 125
2455018	Cadmium	96.4	95.2	P/P	75 - 125
2455018	Chromium	96.1	95.5	P/P	75 - 125
2455018	Lead	97.6	97.4	P/P	75 - 125
2455018	Selenium	93.8	94.0	P/P	75 - 125
2455018	Silver	102	100	P/P	75 - 125

Quality Assurance Report Precision

Reference Method: EPA 6020B
Batch ID: P438707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2455018	Arsenic	1.04	Spike	P	0 - 20
2455018	Barium	1.06	Spike	P	0 - 20
2455018	Cadmium	1.18	Spike	P	0 - 20
2455018	Chromium	0.650	Spike	P	0 - 20
2455018	Lead	0.164	Spike	P	0 - 20
2455018	Selenium	0.208	Spike	P	0 - 20
2455018	Silver	1.76	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 6020B

Run ID: A123173

Included Lab Sample IDs: 2455018, 2455019, 2455020

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	98.3	97.9	P/P	90 - 110
Barium	98.9	99.9	P/P	90 - 110
Cadmium	99.2	98.3	P/P	90 - 110
Chromium	99.1	98.4	P/P	90 - 110
Lead	98.5	98.7	P/P	90 - 110
Selenium	99.5	98.9	P/P	90 - 110
Silver	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	MS		
EPA 6020B	Arsenic	97.7	93.8	92.8		1.04
	Barium	102	100	99.4		1.06
	Cadmium	98.7	96.4	95.2		1.18
	Chromium	97.6	96.1	95.5		0.650
	Lead	99.3	97.6	97.4		0.164
	Selenium	96.9	93.8	94.0		0.208
	Silver	103	102	100		1.76

Reference Method Descriptions

Method	Description	Associated Samples
EPA 6020B	Metals, total recoverable, in solid samples using ICP mass spectrometry	2455018, 2455019, 2455020
SM 2540 G (20th)	Percent solid determination before the other sample preparations.	2455026, 2455027, 2455028

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 6020B	12/06/2023	12/08/2023 13:20	George D Taylor	12/12/2023 14:59	Conrad Hartmann	2455018
	12/06/2023	12/08/2023 13:20	George D Taylor	12/12/2023 15:26	Conrad Hartmann	2455019
	12/06/2023	12/08/2023 13:20	George D Taylor	12/12/2023 15:34	Conrad Hartmann	2455020