



February 23, 2022

Diane Czarnecki
Industrial Hygienist
Facilities Management Division
GSA Public Buildings Service – Heartland Region
2300 Main Street
Kansas City, MO 64108

Re: Goodfellow Federal Center
Metals in Settled Dust Sampling – Resampling from December 2021 Event
Project No. 121244

Dear Ms. Czarnecki:

Thank you for the opportunity to assist the General Services Administration (GSA) with the metals in settled dust sampling investigation at the Goodfellow Federal Center (GFC) in St. Louis, Missouri. Burns & McDonnell understands that the purpose of the investigation was to provide additional sampling data of existing environmental conditions that are present at the GFC that could adversely impact the health and safety of building occupants as well as workers at the facility. The following report summarizes the sample collection activities and the laboratory analytical results of samples submitted.

INTRODUCTION

Per historical use and previous characterization, Burns & McDonnell was contracted to perform settled dust sampling for the analysis of lead from various surfaces throughout the complex that exceeded clean area limits during the December 2021 sampling event. The purpose of this testing was to assess the effectiveness of cleaning and further characterize the presence and concentration of target metals in common tenant-occupied areas of the building.

The proposed sampling plan, the number of samples, the sample distribution and general methodology were developed by GSA and Burns & McDonnell. Specific sample locations were determined during the December 2021 sampling event. Settled dust wipe sampling was conducted on February 1, 2022 by Jeff Smith of OCCU-TEC.

METALS IN SETTLED DUST SAMPLING

Metals in settled dust sampling was conducted primarily within tenant-occupied areas. Dust wipe sampling was conducted in accordance with ASTM Standard E1728: *Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination* and ASTM Standard D6966: *Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Determination of Metals*. ASTM Standards E1728 and D6966 are consistent with the methodology described in the Housing and Urban Development Guidelines-Appendix 13.1 and 40 CFR 745.63. The Brookhaven National Laboratory's Surface Wipe Sampling Procedure (IH75190) was also used as a guideline.

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Dust wipe sampling for the target metals was conducted on a variety of representative surfaces that have the potential of being disturbed by building occupants. A representative surface area of approximately one square foot (1 SF) was measured and delineated. The dust wipe samples were collected using dedicated dust wipe cloths meeting ASTM E1792 Standard. Each dust wipe cloth was pre-moistened and individually wrapped. Each sample was collected by wiping in a back and forth “S” pattern over a measured sampling area using a clean, disposable glove. Then, the wipe was folded over itself and the area was wiped again in a direction perpendicular to the first wipe orientation. Then, the wipe folded over itself again and the area was wiped around the perimeter. The wipe sample was then placed into a labeled, clean container. Dust wipe samples were submitted to Environmental Hazards Services, LLC (EHS) in Richmond, Virginia for Inductively Coupled Plasma (ICP) analysis of lead using Environmental Protection Agency (EPA) method SW846 3050B/6010D. EHS is accredited under the American Industrial Hygiene Association (AIHA) Laboratory Accreditation Program (LAP) identification number LAP-100420.

Whereas the Occupational Safety and Health Administration (OSHA) has not established regulatory limits for surface concentrations of metals, the OSHA Technical Manual Section II: Chapter 2 (III.A) describes a method for calculating “housekeeping” standards, as recommended acceptable surface limits. Brookhaven’s IH75190 procedure uses the housekeeping standards to derive a lower, “clean area limit” for non-operational areas that can be accessed or contacted without special training or precautions. Wipe results were compared to the Brookhaven procedure’s clean area limits for each metal.

Results of the dust wipe samples collected indicate that eleven (11) of the fourteen (14) samples contained concentrations of target metals above laboratory reporting limits. The following table identifies the range of results. Samples with a “<” sign indicate that the results were below the lab’s reportable limit.

Table 1. Summary of Dust Wipe Results

Analyte	Lowest Concentration ^(a) (µg/sq. ft) ^(b)	Highest Concentration ^(a) (µg/sq. ft) ^(b)	Clean Area Limit ^{(c)(d)} µg/sq. ft ^(b)
Lead	<0.50	100	10

- (a) Samples with a “<” sign indicate that the results were below the reportable limit.
- (b) µg/sq. ft = micrograms per square foot of surface area.
- (c) Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL (µg/m³) x 10 m³/100cm²] X 929cm²/sq. ft.] / 15.
- (d) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

Of the 11 samples that had detectable levels of lead, 6 of them exceeded the clean area limit.



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1. A sample taken from the floor near the discard fridge in the lab processing area of the 1st floor of building 105 had 15 $\mu\text{g}/\text{ft}^2$ of lead.
2. A sample taken from the top of a bench by the south entrance in the 1st floor of the south warehouse of building 105E had 12 $\mu\text{g}/\text{ft}^2$ of lead.
3. A sample taken from the floor of the landing of the 2nd floor north stairwell of Building 103D had 100 $\mu\text{g}/\text{ft}^2$ of lead.
4. A sample taken from the mid-floor landing in the south stairwell of Building 103E had 21 $\mu\text{g}/\text{ft}^2$ of lead.
5. A sample taken from the handrail located in the 2nd floor north stairwell of Building 105F had 14 $\mu\text{g}/\text{ft}^2$ of lead.
6. A sample taken from the work station with a vice in the warehouse area of Building 110 had 21 $\mu\text{g}/\text{ft}^2$ of lead.

Burns & McDonnell appreciates the opportunity to work with the GSA on this project. Please contact us if you have any questions regarding this report or if we may be of any additional service.

Sincerely,

(b) (6)

A large black rectangular redaction box covers the signature area.

Matt Shanahan, CHMM
Project Manager

Attachments:
Appendix A – Sample Summary Table
Appendix B – Laboratory Analysis Report

Information in Appendices A and B is not accessible for people using screen reader technology. If this information is required, it can be furnished upon request by contacting 816-223-6198 or r6environmental@gsa.gov.

APPENDIX A – SAMPLE SUMMARY TABLE

Appendix A
Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
103D-W-2R	1st Floor, Health Center	Audiometric equipment table	Lead	1.8	µg/ft ²	10
105-W-1R	2nd floor, Lab Room 306	Base of NW sink	Lead	< 0.50	µg/ft ²	10
105-W-2R	1st floor, Lab Processing	Floor near sink by discard fridge	Lead	15	µg/ft ²	10
105-W-3R	1st floor, Office Area	Desk by column F53	Lead	< 0.50	µg/ft ²	10
105E-W-1R	2nd floor, N lobby	Floor leading to office	Lead	1.4	µg/ft ²	10
105E-W-2R	1st floor, S warehouse	Bench by S entrance	Lead	12	µg/ft ²	10
105E-W-3R	1st floor, S warehouse	Floor in middle of room	Lead	7.9	µg/ft ²	10
103-W-1R	2nd floor	Hallway floor near column I31	Lead	1.3	µg/ft ²	10
103D-W-1R	2nd floor, N stairwell	Floor in landing near peeling paint	Lead	100	µg/ft ²	10
103E-W-1R	S stairwell	Mid floor landing near peeling paint	Lead	21	µg/ft ²	10
105F-W-1R	2nd floor, N stairwell	Hand rail	Lead	14	µg/ft ²	10
110-W-1R	Warehouse, Break Area	N table	Lead	< 0.50	µg/ft ²	10
110-W-2R	Warehouse	Work station with vice	Lead	21	µg/ft ²	10
110-W-3R	Laundry room	Top of mini refrigerator	Lead	1.8	µg/ft ²	10

* Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [$\mu\text{g}/\text{m}^3$] x $10 \text{ m}^3/100\text{cm}^2$] x 929cm²/sq. ft.] / 15. Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

** Indicates results at or above the Clean Area Limit

APPENDIX B – LABORATORY ANALYSIS REPORT



Environmental Hazards Services, L.L.C.
 7469 Whitepine Rd
 Richmond, VA 23237
 Telephone: 800.347.4010

Wipe Metals Analysis Report

Client: Burns & McDonnell Engineering
 9400 Ward Pkwy.
 Kansas City, MO 64114

Report Number: 22-02-00288

Received Date: 02/02/2022

Analyzed Date: 02/18/2022

Reported Date: 02/21/2022

Project/Test Address: 168765; GFC; 4300 Goodfellow Blvd

Client Number:
 26-3514

Laboratory Results

Fax Number:
 816-822-3494

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
22-02-00288-001	103D-W-2R	Lead (Pb)	1.00	1.76	1.8	
22-02-00288-002	105-W-1R	Lead (Pb)	1.00	<0.500	<0.50	
22-02-00288-003	105-W-2R	Lead (Pb)	1.00	14.6	15	
22-02-00288-004	105-W-3R	Lead (Pb)	1.00	<0.500	<0.50	
22-02-00288-005	105E-W-1R	Lead (Pb)	1.00	1.40	1.4	
22-02-00288-006	105E-W-2R	Lead (Pb)	1.00	11.8	12	
22-02-00288-007	105E-W-3R	Lead (Pb)	1.00	7.90	7.9	
22-02-00288-008	103-W-1R	Lead (Pb)	1.00	1.28	1.3	
22-02-00288-009	103D-W-1R	Lead (Pb)	1.00	105	100	
22-02-00288-010	103E-W-1R	Lead (Pb)	1.00	20.7	21	
22-02-00288-011	105F-W-1R	Lead (Pb)	1.00	14.0	14	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-02-00288

Project/Test Address: 168765; GFC; 4300 Goodfellow Blvd

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
22-02-00288-012	110-W-1R	Lead (Pb)	1.00	<0.500	<0.50	
22-02-00288-013	110-W-2R	Lead (Pb)	1.00	21.4	21	
22-02-00288-014	110-W-3R	Lead (Pb)	1.00	1.75	1.8	

Sample Narratives:

Analyst: Ailea Cabatbat

Method: Mercury (Hg): EPA SW846 7471B

All other metals: EPA SW846 3050B/6010D

Reviewed By Authorized Signatory

(b) (6)

Melissa Kanode

QA/QC Clerk

Sample Results denoted with a "less than" (<) sign contains less than the reporting limit for each particular metal, based on a 50mL volume. The reporting limit for Cadmium is 0.10ug, Barium, Lead and Silver are 0.50ug, Arsenic and Chromium are 1.0ug, and Selenium is 2.5ug.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Unless otherwise noted, samples are reported without a dry weight correction. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. These sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. NY ELAP #11714.

Legend ug = microgram ug/ft² = micrograms per square foot
 mL = milliliter ft² = square foot

ENVIRONMENTAL HAZARDS SERVICES, LLC

Metals Chain of Custody Form

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Company Name	Burns & McDonnell	Account #	26-3514
Company Address	9400 Ward Parkway	City/State/Zip	Kansas City, MO 64114
Phone	314-302-4661	Email	eaahlemeyer@burnsmcd.com
Project Name / Testing Address: GFC / 4300 Goodfellow Blvd			
PO Number	168765	Collected By	Jeff Smith
Turn-Around Time	<input checked="" type="radio"/> 3 DAY <input type="radio"/> 2 DAY <input type="radio"/> 1 DAY <input type="radio"/> SAME DAY OR WEEKEND - Must Call Ahead		

LAB NUMBER	Client Sample ID	Collection Date & Time	METALS							Pb ICP Other Metals	PARTICULATES					AIR			WIPES AREA Circle The Unit of Measurement Used cm or (in)
			Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	TX 11 TCLP	CA 17 Total		Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM-10	Total Time	Flow Rate	Vol.	
																Mins.	L/min.	Total Liters	
1	103D-W-2R	2-1-22 1059																	12 x 12
2	105-W-1R	0958																	x
3	105-W-2R	0942																	x
4	105-W-3R	0948																	x
5	105E-W-1R	1021																	x
6	105E-W-2R	1013																	x
7	105E-W-3R	1010																	x
8	103-W-1R	1038																	x
9	103D-W-1R	1043																	x
10	103E-W-1R	1048																	x
11	105F-W-1R	1003																	x
12	110-W-1R	1110																	x
13	110-W-2R	1112																	x
14	110-W-3R	1107																	x
15																			x

Released By:	Jeff Smith	Date:	2-1-22	Time:	1700
Signature:	(b) (6)				

LAB USE ONLY - BELOW THIS LINE

Received By: T. H. [Signature]

Signature: (b) (6)

Date: 2/2/22 Time: 4:45 AM PM

Portal Contact Added

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010
 RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

22-02-00288

Due Date:
02/07/2022
 (Monday)
 EL MM-L