



April 7, 2021

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 2020 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 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 the lead clean area limit during the December 2020 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 scheme, 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 2020 sampling event. Settled dust wipe sampling was conducted on March 25, 2021 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*. ASTM Standard E1728 is consistent with the methodology described in the Housing and Urban Development Guidelines 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 with plastic templates. 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 was 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 metals analysis 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 eighteen (18) of the twenty-one (21) samples contained concentrations of target metals above laboratory reporting limits. The following table identifies the range of results for each of the seven metals that were analyzed. Samples with a “<” sign indicate that the results were below the lab’s reportable limit.

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Table 1. Summary of Dust Wipe Results

Analyte	Lowest Lead Concentration ^(a) (µg/sq. ft) ^(b)	Highest Lead Concentration ^(a) (µg/sq. ft) ^(b)	Clean Area Limit ^(c) µg/sq. ft ^(b)
Lead	<0.25	180	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) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

Eight (8) samples exceeded the lead clean area limit. Sample locations and details are provided in Appendix A.

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)

Matt Shanahan, CHMM
 Project Manager

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

APPENDIX A – SAMPLE SUMMARY TABLE

Appendix A
Wipe Sample Summary Table

Sample Number	Location	Area Description	Lead Result	Units	Clean Area Limit*
110-W-01	Bldg. 110 - 1st floor	Tabletop at column B4	1.7	µg/ft ²	10
110-W-02	Bldg. 110 - 1st floor	Floor at column G8	< 0.50	µg/ft ²	10
110-W-03	Bldg. 110 - south warehouse	Floor at base of NE stairs	180 **	µg/ft ²	10
105-W-04	Bldg. 105 - 2nd floor	USDA lab #320, floor	7.8	µg/ft ²	10
105-W-05	Bldg. 105 - 2nd floor	USDA lab #337, floor under north cabinet	0.73	µg/ft ²	10
105-W-06	Bldg. 105 - 2nd floor	Floor at column F33, under raised flooring	31 **	µg/ft ²	10
105-W-07	Bldg. 105	Freight elevator car floor at column B16	12 **	µg/ft ²	10
105-W-08	Bldg. 105 - 1st floor	Loading dock floor at column C52	5.9	µg/ft ²	10
105-W-09	Bldg. 105 - 1st floor	Warehouse floor at column H48	83 **	µg/ft ²	10
105F-W-10	Bldg. 105F - 2nd floor	South windowsill	0.94	µg/ft ²	10
105F-W-11	Bldg. 105F - 2nd floor	Wire closet concrete sub-floor	40 **	µg/ft ²	10
105L-W-12	Bldg. 105L	Bottom shelf in sound room	2.3	µg/ft ²	10
105L-W-13	Bldg. 105L	Floor in back stage west storage area	23 **	µg/ft ²	10
104-W-14	Bldg. 104	Freight elevator car floor at column B17	65 **	µg/ft ²	10
104-W-15	Bldg. 104 - 2nd floor	Top of cabinet, break room at column F50	8.9	µg/ft ²	10
115-W-16	Bldg. 115	South workout area, high windowsill	0.60	µg/ft ²	10
104F-W-17	Bldg. 104F - 1st floor	Floor at base of north stairs	< 0.50	µg/ft ²	10
103-W-18	Bldg. 103	Freight elevator car floor at column B33	7.1	µg/ft ²	10
103D-W-19	Bldg. 103D - 1st floor	Floor in health clinic storage room	1.9	µg/ft ²	10
103E-W-20	Bldg. 103E - 2nd floor	Floor at column P25	22 **	µg/ft ²	10
BLK-W-21	Field blank	--	< 0.50	µg/ft ²	10

*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

µg/ft² - micrograms per square foot

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: 21-03-05913

Received Date: 03/29/2021

Analyzed Date: 03/31/2021

Reported Date: 04/01/2021

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
21-03-05913-001	110-W-01	Lead (Pb)	1.00	1.66	1.7	
21-03-05913-002	110-W-02	Lead (Pb)	1.00	<0.500	<0.50	
21-03-05913-003	110-W-03	Lead (Pb)	1.00	176	180	
21-03-05913-004	105-W-04	Lead (Pb)	1.00	7.85	7.8	
21-03-05913-005	105-W-05	Lead (Pb)	1.00	0.730	0.73	
21-03-05913-006	105-W-06	Lead (Pb)	1.00	30.6	31	
21-03-05913-007	105-W-07	Lead (Pb)	1.00	11.7	12	
21-03-05913-008	105-W-08	Lead (Pb)	1.00	5.92	5.9	
21-03-05913-009	105-W-09	Lead (Pb)	1.00	82.8	83	
21-03-05913-010	105F-W-10	Lead (Pb)	1.00	0.940	0.94	
21-03-05913-011	105F-W-11	Lead (Pb)	1.00	40.4	40	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 21-03-05913

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
21-03-05913-012	105L-W-12	Lead (Pb)	1.00	2.34	2.3	
21-03-05913-013	105L-W-13	Lead (Pb)	1.00	22.8	23	
21-03-05913-014	104-W-14	Lead (Pb)	1.00	65.3	65	
21-03-05913-015	104-W-15	Lead (Pb)	1.00	8.86	8.9	
21-03-05913-016	115-W-16	Lead (Pb)	1.00	0.600	0.60	
21-03-05913-017	104F-W-17	Lead (Pb)	1.00	<0.500	<0.50	
21-03-05913-018	103-W-18	Lead (Pb)	1.00	7.12	7.1	
21-03-05913-019	103D-W-19	Lead (Pb)	1.00	1.87	1.9	
21-03-05913-020	103E-W-20	Lead (Pb)	1.00	22.2	22	
21-03-05913-021	BLK-W-21	Lead (Pb)	1.00	<0.500	<0.50	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 21-03-05913

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
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Sample Narratives:

Analyst: Kailee Guthrie

Method: Mercury (Hg): EPA SW846 7471B

All other metals: EPA SW846 3050B/6010D

(b) (6)

Reviewed By Authorized Signatory:

Tasha Eaddy

QA/QC Clerk

Sample Results denoted with a "less than" (<) sign contains less than the reporting limit for each particular metal, based on a 100mL volume. The reporting limit for Mercury is 0.10ug, Aluminum, Iron and Zinc are 50ug, Antimony and Selenium are 5.0ug and 2.0ug for all other metals.

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. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

Legend	ug = microgram	ug/ft ² = micrograms per square foot
	mL = milliliter	ft ² = square foot

A ICP Lead only per
Eric 3/29/21

ENVIRONMENTAL HAZARDS SERVICES, LLC
Lead Chain of Custody Form

Company Name		Burns & McDonnell / Occu-Tec				Account #		26-3514									
Company Address		9400 Ward Parkway				City/State/Zip		Kansas City, MO 64114									
Phone		314-302-4661				Email		jsmith@occutec.com									
Project Name / Testing Address		GFC-4300 Goodfellow Blvd.															
PO Number		168765				Collected By		Joff Smith									
Turn-Around Time		<input checked="" type="checkbox"/> 3 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY OR WEEKEND - Must Call Ahead															
Do Submitted Dust Wipe Samples Meet ASTM E1792 Requirements? <input type="checkbox"/> Yes <input type="checkbox"/> No																	
SAMPLE TYPES				SAMPLE LOCATION ABBREVIATIONS								SURFACE TYPE FOR DUST WIPES					
Dust Wipe	DW	Air	A	Family Room	FR	Front	F	1st FL	1	Bath	BA	Bedroom	BR	Floor	FL	Window Well	WW
Paint Chip	PC	Soil	S	Living Room	LR	Rear	R	2nd FL	2	Dining	DR	Basement	O	Carpet	CP	Window Sill	SL
Composite Soil	CS	Composite Wipe	CW	Den	DN	Left	LT	Right	RT	Kitchen	KT						

LAB NUMBER	Client Sample ID	Collection Date	Sample Type	Collection Location [LR, KT, BA,]	Surface Type	Area		Paint Chip		Air		
						Length X Width In Inches [Provide paint chip area only if results are needed in mg/cm ²]	mg/cm ²	% by weight	Total Time [minutes]	Flow Rate [L/min]	Total Volume [Liters]	
1	110-W-01	3-25-21	DW	Bldg 110		12" x 12"						
2	110-W-02	↓	↓	"		12 x 12						
3	110-W-03			"		12 x 12						
4	105-W-04			"	Bldg 105	12 x 12						
5	105-W-05			"	"	12 x 12						
6	105-W-06			"	"	12 x 12						
7	105-W-07			"	"	12 x 12						
8	105-W-08			"	"	12 x 12						
9	105-W-09			"	"	12 x 12						
10	105F-W-10			"	Bldg 105F	12 x 12						
11	105F-W-11			"	"	12 x 12						
12	105L-W-12			"	Bldg 105L	12 x 12						
13	105L-W-13			"	"	12 x 12						
14	104-W-14			"	Bldg 104	12 x 12						

Released By:	Joff Smith	Date:	3-26-21	Time:	1400
Signature:	(b) (6)				

LAB USE ONLY - BELOW THIS LINE

Received By: TS Stone
 Signature: (b) (6)
 Date: 3/29/21 Time: 12:19 AM PM

Portal Contact Added

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

21-03-05913



Due Date:
04/01/2021
(Thursday)
EL

ENVIRONMENTAL HAZARDS SERVICES, LLC

Lead Chain of Custody Form

Company Name	Account #
Company Address	City/State/Zip
Phone	Email

Project Name / Testing Address _____

PO Number _____ Collected By _____

Turn-Around Time: 3 DAY 2 DAY 1 DAY SAME DAY OR WEEKEND - Must Call Ahead

Do Submitted Dust Wipe Samples Meet ASTM E1792 Requirements? Yes No

SAMPLE TYPES				SAMPLE LOCATION ABBREVIATIONS								SURFACE TYPE FOR DUST WIPES					
Dust Wipe	DW	Air	A	Family Room	FR	Front	F	1st FL	1	Bath	BA	Bedroom	BR	Floor	FL	Window Well	WW
Paint Chip	PC	Soil	S	Living Room	LR	Rear	R	2nd FL	2	Dining	DR	Basement	B	Carpet	CP	Window Sill	SL
Composite Soil	CS	Composite Wipes	CW	Den	DN	Left	LT	Right	RT	Kitchen	KT						

LAB NUMBER	Client Sample ID	Collection Date	Sample Type	Collection Location [LR, KT, BA,]	Surface Type	Area		Paint Chip		Air	
						Length X Width In Inches [Provide paint chip area only if results are needed in mg/cm²]	mg/cm²	% by weight	Total Time [minutes]	Flow Rate [L/min]	Total Volume [Liters]
1	104-W-15	3-25-21	DW	Bldg 104		12" X 12"					
2	115-W-16	↓	↓	Bldg 115		12 X 12					
3	104F-W-17			Bldg 104F		12 X 12					
4	103-W-18			Bldg 103		12 X 12					
5	103D-W-19			Bldg 103D		12 X 12					
6	103E-W-20			Bldg 103E		12 X 12					
7	BLK-W-21			BLK-W-21		12 X 12					
8								X			
9						X					
10						X					
11						X					
12						X					
13						X					
14						X					

Released By: Jeff Smith Date: 3-26-21 Time: 1400
 Signature: (b) (6)

LAB USE ONLY - BELOW THIS LINE

Received By: T Stone
 Signature: (b) (6)
 Date: 3, 29, 21 Time: 12:19 AM PM

Portal Contact Added

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

5913

EHS

Laboratories™

Attach Laboratory Label Here