

July 23, 2020

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 – Building 104E

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 of Building 104E located 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 seven (7) of the Resource Conservation and Recovery Act (RCRA) target metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) from various surfaces within buildings. The purpose of this testing was to 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 was developed by GSA and Burns & McDonnell. Specific sample locations were determined by sampling personnel while on-site.

Settled dust wipe sampling at Bldg. 104E was conducted on June 23, 2020 by Emily Ahlemeyer of Burns & McDonnell and 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 CRF 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 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. Burns & McDonnell calculated clean area limits for metals not included in the Brookhaven procedure, specifically barium, chromium (total), selenium and silver. Wipe results were compared to the Brookhaven procedure's clean area limits for each metal.

Results of the dust wipe samples collected from the building indicate that three (3) of the nine (9) 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 Concentration <sup>(a)</sup> (µg/sq. ft) <sup>(b)</sup>	Highest Concentration <sup>(a)</sup> (μg/sq. ft) <sup>(b)</sup>	Clean Area Limit (c) µg/sq. ft (b)
Silver	<2.0	<2.0	62
Arsenic	<2.0	2.9	62
Barium	<2.0	45	3,094
Cadmium	<2.0	2.0	31
Chromium (Total)	<2.0	4.3	3,094
Lead	<2.0	41	10 <sup>(d)</sup>
Selenium	<5.0	<5.0	1,236

- (a) Samples with a "<" sign indicate that the results were below the reportable limit.
- (b)  $\mu$ g/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] / 15.
- (d) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

Two (2) samples exceeded the lead clean area limit. Samples 104E-W-05 and 104E-W-08 resulted in lead concentrations of 41 and 12  $\mu$ g/sq. ft, respectively. The remaining target metal sample results were below housekeeping and clean area limits, as recommended and described by OSHA and the Brookhaven Procedure.

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,



Matt Shanahan, CHMM Project Manager

Attachments:

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

Appendix C – Licenses



# Appendix A Sample Summary Table

Goodfellow Federal Center - Building # 104E - Wipe Sample Data												
Sample Number	Location	Location Area Description Analyte										
104E-W-01	Field Blank		Silver	< 2.0	μg							
			Arsenic	< 2.0	μg							
			Barium	< 2.0	μg							
			Cadmium	< 2.0	μg							
			Chromium	< 2.0	μg							
			Lead	< 2.0	μg							
			Selenium	< 5.0	μg							
104E-W-02	1st Floor NW Office South section, top of bookcase		Silver	< 2.0	μg/ft²	62						
			Arsenic	< 2.0	μg/ft²	62						
			Barium	< 2.0	μg/ft²	3,094						
			Cadmium	< 2.0	μg/ft²	31						
			Chromium	< 2.0	μg/ft²	3,094						
			Lead	< 2.0	μg/ft²	10						
			Selenium	< 5.0	μg/ft²	1,236						
104E-W-03	1st Floor Break Room	Floor near sink	Silver	< 2.0	μg/ft²	62						
			Arsenic	< 2.0	μg/ft²	62						
			Barium	< 2.0	μg/ft²	3,094						
		Cadmium	< 2.0	μg/ft <sup>2</sup>	31							
		Chromium	< 2.0	μg/ft <sup>2</sup>	3,094							
		Lead	< 2.0	μg/ft <sup>2</sup>	10							
			Selenium	< 5.0	μg/ft²	1,236						

Appendix A
Sample Summary Table

Goodfellow Federal Center - Building # 104E - Wipe Sample Data													
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*							
104E-W-04	1st Floor North Server Room	Floor tile	Silver	< 2.0	μg/ft²	62							
			Arsenic	2.9	μg/ft²	62							
			Barium	4.2	μg/ft²	3,094							
			Cadmium	< 2.0	μg/ft²	31							
			Chromium	< 2.0	μg/ft²	3,094							
			Lead	< 2.0	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							
104E-W-05	2nd Floor Stairwell	Stairwell Landing to penthouse floor Silver Arsenic		< 2.0	μg/ft²	62							
				< 2.0	μg/ft²	62							
			Barium	45	μg/ft²	3,094							
			Cadmium	< 2.0	μg/ft²	31							
			Chromium	< 2.0	μg/ft²	3,094							
			Lead	41	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							
104E-W-06	2nd Floor North Elevator Lobby	Tile floor in lobby	Silver	< 2.0	μg/ft²	62							
			Arsenic	< 2.0	μg/ft²	62							
			Barium	< 2.0	μg/ft²	3,094							
		Cadmium	< 2.0	μg/ft²	31								
			Chromium	< 2.0	μg/ft²	3,094							
			Lead	< 2.0	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							

# Appendix A Sample Summary Table

Goodfellow Federal Center - Building # 104E - Wipe Sample Data													
Sample Number	Location	Area Description	Area Description Analyte										
104E-W-07	2nd Floor Canopy Café	Floor near column N45	Silver	< 2.0	μg/ft²	62							
			Arsenic	< 2.0	μg/ft²	62							
			Barium	< 2.0	μg/ft²	3,094							
			Cadmium	< 2.0	μg/ft²	31							
			Chromium	< 2.0	μg/ft²	3,094							
			Lead	< 2.0	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							
104E-W-08	2nd Floor Canopy Café	Top of upper cabinets	Silver	< 2.0	μg/ft²	62							
			Arsenic	< 2.0	μg/ft²	62							
			Barium	24	μg/ft²	3,094							
			Cadmium	< 2.0	μg/ft²	31							
			Chromium	4.3	μg/ft²	3,094							
			Lead	12	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							
104E-W-09	2nd Floor Office Area	Top of file cabinet near column P51	Silver	< 2.0	μg/ft²	62							
			Arsenic	< 2.0	μg/ft²	62							
			Barium	< 2.0	μg/ft²	3,094							
			Cadmium	< 2.0	μg/ft²	31							
			Chromium	< 2.0	μg/ft²	3,094							
			Lead	< 2.0	μg/ft²	10							
			Selenium	< 5.0	μg/ft²	1,236							

<sup>\*</sup> Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL ( $\mu g/m^3$ ) x 10  $m^3/100cm^2$ ] / 15. Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10  $\mu g/sq$ . ft. as of January 2020.

Indicates results at or above the Clean Area Limit





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

Telephone: 800.347.4010

9400 Ward Pkwy. Kansas City, MO 64114

Burns & McDonnell Engineering

**Wipe Metals Analysis Report** 

**Report Number:** 20-06-03483

Received Date: 06/29/2020 Analyzed Date: 07/01/2020 Reported Date: 07/02/2020

Project/Test Address: 168765; Goodfellow IH Services; 4300 Goodfellow Blvd.

**Client Number:** 

Client:

Fax Number: **Laboratory Results** 816-822-3494 26-3514

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft²)	Total Metal (ug)	Concentration (ug/ft²)	Narrative ID
20-06-03483-001	104E-W-01	Arsenic (As)		<2.00		
		Barium (Ba)		<2.00		
		Cadmium (Cd)		<2.00		
		Chromium (Cr)		<2.00		
		Lead (Pb)		<2.00		
		Selenium (Se)		<5.00		
		Silver (Ag)		<2.00		
20-06-03483-002	104E-W-02	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	<2.00	<2.0	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	

**Client Number:** 

26-3514

**Report Number:** 

20-06-03483

**Project/Test Address:** 168765; Goodfellow IH Services; 4300 Goodfellow Blvd.

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft²)	Total Metal (ug)	Concentration (ug/ft²)	Narrative ID
		Lead (Pb)	1.00	<2.00	<2.0	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03483-003	104E-W-03	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	<2.00	<2.0	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03483-004	104E-W-04	Arsenic (As)	1.00	2.87	2.9	
		Barium (Ba)	1.00	4.21	4.2	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03483-005	104E-W-05	Arsenic (As)	1.00	<2.00	<2.0	

Client Number:

26-3514

Project/Test Address: 168765; Goodfellow IH Services; 4300 Goodfellow

Report Number:

20-06-03483

Blvd.

**Client Sample** Wipe Area **Total Metal** Concentration Lab Sample Analyte: Narrative Number Number (ug/ft<sup>2</sup>) ID (ft<sup>2</sup>) (ug) Barium (Ba) 1.00 45.2 45 Cadmium (Cd) 1.00 <2.00 <2.0 Chromium (Cr) 1.00 <2.00 < 2.0 41 Lead (Pb) 1.00 41.0 Selenium (Se) 1.00 < 5.00 < 5.0 Silver (Ag) 1.00 <2.00 <2.0 20-06-03483-006 104E-W-06 Arsenic (As) 1.00 <2.00 <2.0 Barium (Ba) 1.00 < 2.00 < 2.0 Cadmium (Cd) 1.00 < 2.00 < 2.0 Chromium (Cr) <2.00 <2.0 1.00 <2.00 <2.0 Lead (Pb) 1.00 Selenium (Se) < 5.00 < 5.0 1.00 Silver (Ag) 1.00 < 2.00 < 2.0 104E-W-07 <2.0 20-06-03483-007 Arsenic (As) 1.00 <2.00 Barium (Ba) 1.00 < 2.00 <2.0 Cadmium (Cd) <2.0 1.00 < 2.00 Chromium (Cr) 1.00 <2.00 <2.0 Lead (Pb) 1.00 < 2.00 <2.0

**Client Number:** 

26-3514

**Project/Test Address:** 168765; Goodfellow IH Services; 4300 Goodfellow Blvd.

**Report Number:** 

20-06-03483

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft²)	Total Metal (ug)	Concentration (ug/ft²)	Narrative ID
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03483-008	104E-W-08	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	23.9	24	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	4.30	4.3	
		Lead (Pb)	1.00	12.3	12	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03483-009	104E-W-09	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	<2.00	<2.0	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	

**Client Number:** 26-3514 **Report Number:** 20-06-03483

Project/Test Address: 168765; Goodfellow IH Services; 4300 Goodfellow

Blvd.

Lab Sample Client Sample Analyte: Wipe Area Total Metal Concentration Narrative Number (ft²) (ug) (ug/ft²) ID

Sample Narratives:

Analyst: Brittany Meyer

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  $ft^2 = square foot$ 

## **ENVIRONMENTAL HAZARDS SERVICES, LLC**

Metals Chain of Custody Form

	1	
Pg	of	Mark

	ompany Name Burns & McDonnell							A	ccou	ınt	#	26	-35	14													
Co	mpany Address	9400 Ward Parkway								City/State/Zip Kansas City, MO 64114				4													
Phone 816-349-6646 Email mshanahan@burnsmcd.c											ncd.com																
Р	Project Name / Testing Address   Goodfellow IH Services / 4300 Goodfellow Blvd.																										
PO Number 168765 Collected By Emily Anlemager 3 deff Smith																											
Turn-Around Time 3 DAY C 2 DAY C 1 DAY C SAME DAY OR WEEKEND - Must Call Ahead																											
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LAB NI	Sample ID		Date & Time	Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	TX 11 TCLP	CA 17 Total	1	Other Metals				E E		18		Respirable Dust	TSP Gravimetric	dd AST	PM- 10	Mins.	L/min.	Total Liters	Circle The Unit of Measurement Used cm or (in)
1	104E-W-01	6/23	3/2020 1050	100000	1000000			28.50			Agills. Bo	a, cd. Se.		esento.							NA ×NA						
2	104E-W-02		1145								1										12 × 12						
3	104E-W -03		1150									***************************************									12 ×12						
4	104E-W-04		1154																		12 × 12						
5	104E-W-05	5 /	1200									***************************************									12 ×12						
6	104E-W-06		1205								and a contract of the contract										12 ×12						
7	104E-W-07		1210								and the state of t			*************							12×12						
8	104B-W-08	CONTRACTOR OF THE PERSON OF TH	1214								SCAPA SELANDERS										12 × 12						
9	104E-W-09		1220																		12 × 12						
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20-06-03483



Due Date: 07/02/2020 (Thursday) EL



## STATE OF MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES

## **LEAD OCCUPATION LICENSE REGISTRATION**

Issued to:

# Jeffrey T. Smith

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

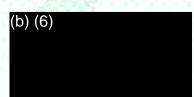
### **Lead Risk Assessor**

Category of License

Issuance Date: 3/16/2019
Expiration Date: 3/16/2021

License Number: 010316-200089640





Randall W. Williams, MD, FACOG
Director
Department of Health and Senior Services