August 23, 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 June 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 and cadmium from various surfaces throughout the complex that exceeded clean area limits during the June 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 June 2021 sampling event. Settled dust wipe sampling was conducted on August 10, 2021 by Justin Arnold 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.

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 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 twenty-six (26) of the thirty (30) samples contained concentrations of target metals above laboratory reporting limits. The following table identifies the range of results for each of the two metals that were analyzed. 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)]
Cadmium	0.14	0.14	31
Lead	<0.50	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) Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL (µg/m^3) x 10 m^3/100cm^2] / 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 26 samples that had detectable levels of one or more analytes, 13 of them exceeded the clean area limit.

1. A sample taken from the concrete floor in the southeast room near the stairs on the second floor of building 102E had 16 µg/ft² of lead.
2. A sample taken from the floor near some peeling paint in the north stairwell of the second floor of building 103D had 22 µg/ft² of lead.
3. A sample taken from the handrail in the north stairwell of the second floor of building 103D had 13 µg/ft² of lead.
4. A sample taken from the floor in the janitorial closet in the south lobby of the second floor of building 103E had 10 µg/ft² of lead.
5. A sample taken from the floor near some peeling paint in the south stairwell of the second floor of building 103E had 80 µg/ft² of lead.
6. A sample taken from the handrail in the south stairwell of the second floor of building 104F had 19 µg/ft² of lead.
7. A sample taken from the floor near the mechanical room by column B6 on the first floor of building 105 had 22 µg/ft² of lead.
8. A sample taken from the handrail in the north stairwell of the second floor of building 105F had 180 µg/ft² of lead.
9. A sample taken from the floor in the east backstage area of building 105L had 38 µg/ft² of lead.
10. A sample taken from the top of the audio equipment in the sound booth of building 105L had 83 µg/ft² of lead.
11. A sample taken from the coat rack along the south wall of room 104 of building 105L had 11 µg/ft² of lead.
12. A sample taken from the window sill in room 236 on the second floor of building 107 had 18 µg/ft² of lead.
13. A sample taken from the work station with the vice in the ICE JV warehouse area of building 110 had 30 µg/ft² 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)

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*
102E-W-01	2nd floor, SE room near stairs	Base concrete floor sample	Lead	16	µg/ft^2	10
103-W-01	1st floor, column C32	Floor in server room	Lead	2.2	µg/ft^2	10
103D-W-01	1st floor, north lobby	Floor in men's restroom janitor's closet	Lead	4.7	µg/ft^2	10
103D-W-02	2nd floor, north stairwell	Floor near peeling paint	Lead	22	µg/ft^2	10
103D-W-03	2nd floor, north stairwell	Hand rail	Lead	13	µg/ft^2	10
103E-W-01	2nd floor, south end	Floor in janitorial closet	Lead	10	µg/ft^2	10
103E-W-02	2nd floor, south stairwell	Hand rail	Lead	4.4	µg/ft^2	10
103E-W-03	2nd floor, south stairwell	Floor near peeling paint	Lead	80	µg/ft^2	10
103E-W-04	1st floor, north lobby	Top of furnace in janitor's closet	Lead	6.7	µg/ft^2	10
104-W-01	2nd floor, column J16	Corner cubicle desk	Lead	< 0.50	µg/ft^2	10
104F-W-01	2nd floor, south stairwell	Hand rail	Lead	19	µg/ft^2	10
104F-W-02	1st floor, north lobby	Floor in janitor's closet	Lead	1.4	µg/ft^2	10
105-W-01	2nd floor, room 320 (gas storage)	North floor area	Lead	1.8	µg/ft^2	10
			Cadmium	0.14	µg/ft^2	31
105-W-02	2nd floor, lab room 306	Base of northwest sink	Lead	1.2	µg/ft^2	10
105-W-03	1st floor, lab processing	Floor in sink area by discard fridge	Lead	3.4	µg/ft^2	10
105-W-04	1st floor, warehouse, column C45	Floor near trash cans	Lead	2.7	µg/ft^2	10
105-W-05	1st floor, column B6	Floor outside mechanical room	Lead	22	µg/ft^2	10
105F-W-01	1st floor, north janitorial closet	Concrete floor	Lead	4.5	µg/ft^2	10
105F-W-02	2nd floor, north stairwell	Hand rail	Lead	180	µg/ft^2	10
105L-W-01	East back stage area	Floor sample	Lead	38	µg/ft^2	10
105L-W-02	Sound booth	Top of audio equipment	Lead	83	µg/ft^2	10
105L-W-03	Room 104	Coat rack on south wall	Lead	11	µg/ft^2	10
107-W-01	2nd floor, janitorial closet	Floor tile	Lead	1.8	µg/ft^2	10
107-W-02	2nd floor, room 236	Window sill	Lead	18	µg/ft^2	10
110-W-01	2nd floor, column F2	Floor in janitorial closet	Lead	1.6	µg/ft^2	10
110-W-02	Goodwill laundry room	Top of mini refrigerator	Lead	7.9	µg/ft^2	10
110-W-03	ICE JV warehouse	Work station with vice	Lead	30	µg/ft^2	10
FB-01	Field blank	--	Lead	< 0.500	µg	--

Appendix A
Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
FB-02	Field blank	--	Lead	< 0.500	µg	--
FB-03	Field blank	--	Lead	< 0.500	µg	--

* Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL (µg/m^3) x 10 m^3/100cm^2] / 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: 21-08-02426

Received Date: 08/16/2021
Analyzed Date: 08/18/2021
Reported Date: 08/18/2021

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
21-08-02426-001	102E-W-01	Lead (Pb)	1.00	16.4	16	
21-08-02426-002	103-W-01	Lead (Pb)	1.00	2.22	2.2	
21-08-02426-003	103D-W-01	Lead (Pb)	1.00	4.73	4.7	
21-08-02426-004	103D-W-02	Lead (Pb)	1.00	21.6	22	
21-08-02426-005	103D-W-03	Lead (Pb)	1.00	13.1	13	
21-08-02426-006	103E-W-01	Lead (Pb)	1.00	9.97	10	
21-08-02426-007	103-E-W-02	Lead (Pb)	1.00	4.43	4.4	
21-08-02426-008	103E-W-03	Lead (Pb)	1.00	79.7	80	
21-08-02426-009	103E-W-04	Lead (Pb)	1.00	6.70	6.7	
21-08-02426-010	104-W-01	Lead (Pb)	1.00	<0.500	<0.50	
21-08-02426-011	104F-W-01	Lead (Pb)	1.00	19.4	19	

Client Number: 26-3514 **Report Number:** 21-08-02426

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
21-08-02426-012	104F-W-02	Lead (Pb)	1.00	1.44	1.4	
21-08-02426-013	105-W-01	Cadmium (Cd)	1.00	0.135	0.14	
		Lead (Pb)	1.00	1.76	1.8	
21-08-02426-014	105-W-02	Lead (Pb)	1.00	1.15	1.2	
21-08-02426-015	105-W-03	Lead (Pb)	1.00	3.35	3.4	
21-08-02426-016	105-W-04	Lead (Pb)	1.00	2.72	2.7	
21-08-02426-017	105-W-05	Lead (Pb)	1.00	21.5	22	
21-08-02426-018	105F-W-01	Lead (Pb)	1.00	4.50	4.5	
21-08-02426-019	105F-W-02	Lead (Pb)	1.00	178	180	
21-08-02426-020	105L-W-01	Lead (Pb)	1.00	37.5	38	
21-08-02426-021	105L-W-02	Lead (Pb)	1.00	83.3	83	
21-08-02426-022	105L-W-03	Lead (Pb)	0.993	10.9	11	
21-08-02426-023	107-W-01	Lead (Pb)	1.00	1.79	1.8	
21-08-02426-024	107-W-02	Lead (Pb)	1.00	18.0	18	
21-08-02426-025	110-W-01	Lead (Pb)	1.00	1.56	1.6	
21-08-02426-026	110-W-02	Lead (Pb)	1.00	7.92	7.9	
21-08-02426-027	110-W-03	Lead (Pb)	1.00	29.8	30	
21-08-02426-028	FB-01	Lead (Pb)		<0.500	---	
21-08-02426-029	FB-02	Lead (Pb)		<0.500	---	

Environmental Hazards Services, L.L.C

Client Number: 26-3514 **Report Number:** 21-08-02426

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
21-08-02426-030	FB-03	Lead (Pb)		<0.500	---	

Sample Narratives:

Analyst: Anthony Dee

Method: Mercury (Hg): EPA SW846 7471B

All other metals: EPA SW846 3050B/6010D

Reviewed By Authorized Signatory: (b) (6)

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 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. 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

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	Justin Arnold

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

LAB NUMBER	Client Sample ID	Collection Date & Time	METALS: Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	TX 11 TCLP	CA 17 Total	Other Metals	PARTICULATES: Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM-10	AIR: Total Time (Mins.)	Flow Rate (L/min.)	Vol. (Total Liters)	WIPES: AREA (Circle The Unit of Measurement Used: cm or in)
1	102E-W-01	8.10.21 11:40								Pb									12 x 12
2	103-W-01	" " 12:16																	12 x 12
3	103D-W-01	" " 11:49																	12 x 12
4	103D-W-02	" " 11:54																	12 x 12
5	103D-W-03	12:00																	6" x 24"
6	103E-W-01	12:10																	12 x 12
7	103E-W-02	12:03																	6 x ~~12~~ 24
8	103E-W-03	12:06																	12 x 12
9	103E-W-04	12:25																	12 x 12
10	104-W-01	12:45																	12 x 12
11	104F-W-01	12:34																	6 x 24
12	104F-W-02	12:39																	12 x 12
13	105-W-01	12:54								Cd, Pb									12 x 12
14	105-W-02	13:00								Pb									12 x 12
15	105-W-03	13:05																	12 x 12

Released By: Justin Arnold Date: 8.12.21 Time: 1500

Signature: (b) (6)

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6)

Date: 8/16/21 Time: 10:48 ☒ AM ☐ PM

☐ Portal Contact Added

21-08-02426

Due Date: 08/19/2021 (Thursday)

EL MM-L

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

ENVIRONMENTAL HAZARDS SERVICES, LLC

Metals Chain of Custody Form

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	Justin Arnold

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

LAB NUMBER	Client Sample ID	Collection Date & Time	METALS: Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	TX 11 TCLP	CA 17 Total	Other Metals	PARTICULATES: Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM- 10	AIR: Total Time (Mins.)	Flow Rate (L/min.)	Vol. (Total Liters)	WIPES: AREA (Circle The Unit of Measurement Used: cm or in)
1	105-W-04	8.10.21 1310								Pb									12 x 12
2	105-W-05	1317																	12 x 12
3	105F-W-01	1344																	12 x 12
4	105F-W-02	1350																	6 x 24
5	105L-W-01	1330																	12 x 12
6	105L-W-02	1334																	12 x 12
7	105L-W-03	1339																	11 x 13
8	107-W-01	1125																	12 x 12
9	107-W-02	1133																	12 x 12
10	110-W-01	1400																	12 x 12
11	110-W-02	1408																	12 x 12
12	110-W-03	1415																	12 x 12
13	FB-01	1500																	x
14	FB-02	1500																	x
15	FB-03	1500																	x

Released By: Justin Arnold Date: 8.12.21 Time: 1500

Signature: (b) (6)

LAB USE ONLY – BELOW THIS LINE

Received By: Stone

Signature: (b) (6)

Date: 8/16/21 Time: 10:48 ☒ AM ☐ PM

☐ Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

EHS Laboratories™

Attach Laboratory Label Here