



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 104
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 104 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. 104 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 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 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 twelve (12) of the twenty-two (22) 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

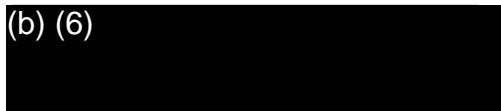
Analyte	Lowest Concentration ^(a) (µg/sq. ft) ^(b)	Highest Concentration ^(a) (µg/sq. ft) ^(b)	Clean Area Limit ^(c) µg/sq. ft ^(b)
Silver	<2.0	<2.0	62
Arsenic	<2.0	<2.0	62
Barium	<2.0	47	3,094
Cadmium	<2.0	2.8	31
Chromium (Total)	<2.0	13	3,094
Lead	<2.0	42	10 ^(d)
Selenium	<5.0	<5.0	1,236

- (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] / 15.
- (d) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

Four (4) samples exceeded the lead clean area limit. Samples 104-W-06, 104-W-15, 104-W-21, 104-W-22 resulted in lead concentrations of 42, 27, 17, and 13 µg/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,

(b) (6)


Matt Shanahan, CHMM
 Project Manager

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

APPENDIX A – SAMPLE SUMMARY TABLE

Appendix A
Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-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	--
104-W-02	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	--
104-W-03	2nd Floor Bridge to 104E	Top of display cabinet	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

Appendix A

Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-04	2nd Floor Break Room Column C45	Floor along west wall	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-05	2nd Floor Break Room Column C45	Top of refrigerator	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	11	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	3.7	µg/ft ²	3,094
			Lead	2.8	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-06	2nd Floor Freight Elevator	Elevator threshold near column B45	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	37	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	7.5	µg/ft ²	3,094
			Lead	42	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-07	2nd Floor SW Lobby	Carpet outside SW elevator #2	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	2.9	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-08	2nd Floor SW Lobby	Stairwell landing floor	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	4.8	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-09	2nd Floor Lockers	Top of locker near column G44	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	2.8	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-10	2nd Floor Break Room Column J35	Top of vending machine	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	5.2	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-11	2nd Floor Break Room Column J35	Floor outside break room	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-12	2nd Floor West Stairwell	Floor outside stairwell	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-13	2nd Floor Office Area	Top of file cabinet near column H29	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-14	2nd Floor Office Area	Top of file cabinet near column H23	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-15	2nd Floor Freight Elevator	Threshold of elevator, column B17	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	11	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	2.4	µg/ft ²	3,094
			Lead	27	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-16	2nd Floor Break Room Column B19	Top of cabinets	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	9.9	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	6.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-17	2nd Floor North Office Area	Top of bookcase, N conference room	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-18	2nd Floor North Elevator Lobby	Floor outside elevator	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	< 2.0	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-19	1st Floor Former VA Space	Top of standing desk, column G3	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	6.1	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	< 2.0	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-20	1st Floor Former VA Space	Floor near column F4	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	6.3	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	< 2.0	µg/ft ²	3,094
			Lead	2.2	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236
104-W-21	1st Floor Warehouse	Floor near column C5	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	47	µg/ft ²	3,094
			Cadmium	2.8	µg/ft ²	31
			Chromium	13	µg/ft ²	3,094
			Lead	17	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-22	1st Floor Warehouse	Desk surface near column A5	Silver	< 2.0	µg/ft ²	62
			Arsenic	< 2.0	µg/ft ²	62
			Barium	14	µg/ft ²	3,094
			Cadmium	< 2.0	µg/ft ²	31
			Chromium	2.5	µg/ft ²	3,094
			Lead	13	µg/ft ²	10
			Selenium	< 5.0	µg/ft ²	1,236

* Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [$\mu\text{g}/\text{m}^3 \times 10 \text{ m}^3/100\text{cm}^2$] / 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: 20-06-03478

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:
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
20-06-03478-001	104-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	---	
20-06-03478-002	104-W-02	Arsenic (As)		<2.00	---	
		Barium (Ba)		<2.00	---	
		Cadmium (Cd)		<2.00	---	
		Chromium (Cr)		<2.00	---	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Lead (Pb)		<2.00	---	
		Selenium (Se)		<5.00	---	
		Silver (Ag)		<2.00	---	
20-06-03478-003	104-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	
20-06-03478-004	104-W-04	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	
20-06-03478-005	104-W-05	Arsenic (As)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Barium (Ba)	1.00	11.2	11	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	3.74	3.7	
		Lead (Pb)	1.00	2.75	2.8	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-006	104-W-06	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	37.1	37	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	7.48	7.5	
		Lead (Pb)	1.00	41.8	42	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-007	104-W-07	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	2.86	2.9	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-008	104-W-08	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	4.76	4.8	
		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	
20-06-03478-009	104-W-09	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	2.81	2.8	
		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	
20-06-03478-010	104-W-10	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	5.21	5.2	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		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	
20-06-03478-011	104-W-11	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	
20-06-03478-012	104-W-12	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	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-013	104-W-13	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	
20-06-03478-014	104-W-14	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	
20-06-03478-015	104-W-15	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	11.2	11	
		Cadmium (Cd)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Chromium (Cr)	1.00	2.37	2.4	
		Lead (Pb)	1.00	27.1	27	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-016	104-W-16	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	9.86	9.9	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	5.99	6.0	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-017	104-W-17	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	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
20-06-03478-018	104-W-18	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	
20-06-03478-019	104-W-19	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	6.10	6.1	
		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	
20-06-03478-020	104-W-20	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	6.26	6.3	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

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

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft ²)	Total Metal (ug)	Concentration (ug/ft ²)	Narrative ID
		Lead (Pb)	1.00	2.21	2.2	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-021	104-W-21	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	46.9	47	
		Cadmium (Cd)	1.00	2.76	2.8	
		Chromium (Cr)	1.00	13.1	13	
		Lead (Pb)	1.00	16.9	17	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03478-022	104-W-22	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	14.2	14	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	2.47	2.5	
		Lead (Pb)	1.00	12.8	13	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-06-03478

Project/Test Address: 168765; Goodfellow IH Services; 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: 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/ft² = micrograms per square foot
 mL = milliliter ft² = 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	816-349-6646	Email	mshanahan@burnsmcd.com
Project Name / Testing Address	Goodfellow IH Services / 4300 Goodfellow Blvd.		
PO Number	168765	Collected By	Emily Anlemeyer & 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						Other Metals	PARTICULATES					AIR			WIPES
			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.
																Circle The Unit of Measurement Used cm or (in)		
1	104-W-01	6/23/2020 1048							Ag, As, Ba, Cd, Cr, Pb, Se									NA x NA
2	104-W-02	1049																NA x NA
3	104-W-03	1223																12 x 12
4	104-W-04	1228																12 x 12
5	104-W-05	1230																12 x 12
6	104-W-06	1235																12 x 12
7	104-W-07	1240																12 x 12
8	104-W-08	1243																12 x 12
9	104-W-09	1249																12 x 12
10	104-W-10	1255																12 x 12
11	104-W-11	1257																12 x 12
12	104-W-12	1302																12 x 12
13	104-W-13	1305																12 x 12
14	104-W-14	1309																12 x 12
15	104-W-15	1316																12 x 12

Released By: Emily Anlemeyer	Date: 6/26/2020	Time: 4:00 PM
Signature: (b) (6)		

LAB USE ONLY - BELOW THIS LINE

Received By: T Stone

Signature: (b) (6)


Date: 6/29/20 Time: 10:55 AM PM

Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

20-06-03478



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

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	816-349-6646	Email	mshanahan@burnsmcd.com
Project Name / Testing Address	Goodfellow IH Services / 4300 Goodfellow Blvd.		
PO Number	168765	Collected By	Emily Ahlemeyer & Jeff 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		

LAB NUMBER	Client Sample ID	Collection Date & Time	METALS						Other Metals	PARTICULATES					AIR			WIPES AREA <small>Circle The Unit of Measurement Used</small> 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	104-W-16	6/23/2020 1319							Ag, As, Ba, Cd, Cr, Pb, Se										12 x 12
2	104-W-17	1327																	12 x 12
3	104-W-18	1334																	12 x 12
4	104-W-19	1339																	12 x 12
5	104-W-20	1341																	12 x 12
6	104-W-21	1344																	12 x 12
7	104-W-22	1347																	12 x 12
8																			x
9																			x
10																			x
11																			x
12																			x
13																			x
14																			x
15																			x

Released By: Emily Ahlemeyer	Date: 6/26/2020	Time: 4:00 PM
Signature: (b) (6)		

LAB USE ONLY - BELOW THIS LINE

Received By: T Stone

Signature: (b) (6)

Date: 6/29/20 Time: 10:55 AM PM

Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

3478

EHS

Laboratories™

Attach Laboratory Label Here

APPENDIX C – LICENSES

**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**



(b) (6)

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

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102