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 110
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 110 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. 110 was conducted on June 26, 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.

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 ten (10) 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.

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	9.3	62
Barium	<2.0	270	3,094
Cadmium	<2.0	29	31
Chromium (Total)	<2.0	42	3,094
Lead	<2.0	180	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/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.

Four (4) samples exceeded the lead clean area limit. Samples 110-W-04, 110-W-15, 110-W-19 and 110-W-20 resulted in lead concentrations of 32, 58, 140, and 180 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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-01	1st Floor Break Room	Tile floor, SW corner	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
110-W-02	1st Floor Break Room	Top shelf above microwave	Silver	< 2.0	µg/ft^2	62
			Arsenic	< 2.0	µg/ft^2	62
			Barium	3.6	µg/ft^2	3,094
			Cadmium	< 2.0	µg/ft^2	31
			Chromium	< 2.0	µg/ft^2	3,094
			Lead	2.1	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-03	1st Floor Gathering Area	Top of fridge, column E16	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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-04	1st Floor Loading Dock	Floor near column A4	Silver	< 2.0	µg/ft^2	62
			Arsenic	< 2.0	µg/ft^2	62
			Barium	63	µg/ft^2	3,094
			Cadmium	< 2.0	µg/ft^2	31
			Chromium	8.6	µg/ft^2	3,094
			Lead	32	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-05	1st Floor Loading Dock	Top of box near column A4	Silver	< 2.0	µg/ft^2	62
			Arsenic	3.3	µg/ft^2	62
			Barium	64	µg/ft^2	3,094
			Cadmium	< 2.0	µg/ft^2	31
			Chromium	12	µg/ft^2	3,094
			Lead	6.9	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-06	1st Floor Office Area	Floor near column H11	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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-07	1st Floor Office Area	Top of cabiner near column P11	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
110-W-08	1st Floor Office Area	Storage room floor, column E11	Silver	< 2.0	µg/ft^2	62
			Arsenic	< 2.0	µg/ft^2	62
			Barium	27	µg/ft^2	3,094
			Cadmium	< 2.0	µg/ft^2	31
			Chromium	< 2.0	µg/ft^2	3,094
			Lead	3.3	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-09	2nd Floor Break Room	Floor under sink	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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-10	2nd Floor Break Room	Top of refrigerator	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	2.4	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-11	2nd Floor Office Area	Chair mat floor near column M12	Silver	< 2.0	µg/ft^2	62
			Arsenic	< 2.0	µg/ft^2	62
			Barium	< 2.0	µg/ft^2	3,094
			Cadmium	3.6	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
110-W-12	2nd Floor Office Area	File cabinet near column P13	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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-13	2nd Floor Break Area	Floor near column C12	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
110-W-14	2nd Floor Break Area	Top of refrigerator, column B12	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
110-W-15	2nd Floor Storage Room	Floor near column F11	Silver	< 2.0	µg/ft^2	62
			Arsenic	2.4	µg/ft^2	62
			Barium	120	µg/ft^2	3,094
			Cadmium	2.4	µg/ft^2	31
			Chromium	20	µg/ft^2	3,094
			Lead	58	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236

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Sample Summary Table

Goodfellow Federal Center - Building # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-16	ICE/JV Office	Floor inside entryway	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
110-W-17	MERS Break Room	Top of vending machine	Silver	< 2.0	µg/ft^2	62
			Arsenic	< 2.0	µg/ft^2	62
			Barium	13	µg/ft^2	3,094
			Cadmium	< 2.0	µg/ft^2	31
			Chromium	< 2.0	µg/ft^2	3,094
			Lead	5.3	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-18	MERS Break Room	Floor next to vending machine	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 # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-19	Mezzanine Level	Floor	Silver	< 2.0	µg/ft^2	62
			Arsenic	7.2	µg/ft^2	62
			Barium	150	µg/ft^2	3,094
			Cadmium	2.4	µg/ft^2	31
			Chromium	29	µg/ft^2	3,094
			Lead	140	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-20	Mezzanine Level	Top of HVAC system	Silver	3.6	µg/ft^2	62
			Arsenic	9.3	µg/ft^2	62
			Barium	270	µg/ft^2	3,094
			Cadmium	29	µg/ft^2	31
			Chromium	42	µg/ft^2	3,094
			Lead	180	µg/ft^2	10
			Selenium	< 5.0	µg/ft^2	1,236
110-W-21	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	--

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Sample Summary Table

Goodfellow Federal Center - Building # 110 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Clean Area Limit***
110-W-22	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	--

* 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: 20-06-03513

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
20-06-03513-001	110-W-01	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	
20-06-03513-002	110-W-02	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	3.56	3.6	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	2.11	2.1	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-003	110-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	
20-06-03513-004	110-W-04	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	62.5	63	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	8.56	8.6	
		Lead (Pb)	1.00	31.7	32	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-005	110-W-05	Arsenic (As)	1.00	3.34	3.3	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	64.3	64	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	11.6	12	
		Lead (Pb)	1.00	6.91	6.9	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-006	110-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)	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	
20-06-03513-007	110-W-07	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	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	
20-06-03513-008	110-W-08	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	26.6	27	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	3.32	3.3	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-009	110-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	
20-06-03513-010	110-W-10	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	2.79	2.8	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	2.39	2.4	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-011	110-W-11	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	<2.00	<2.0	
		Cadmium (Cd)	1.00	3.59	3.6	
		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	
20-06-03513-012	110-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	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	
20-06-03513-013	110-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	
20-06-03513-014	110-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	
20-06-03513-015	110-W-15	Arsenic (As)	1.00	2.41	2.4	
		Barium (Ba)	1.00	117	120	
		Cadmium (Cd)	1.00	2.44	2.4	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	19.7	20	
		Lead (Pb)	1.00	58.0	58	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-016	110-W-16	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	
20-06-03513-017	110-W-17	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	13.5	13	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	5.33	5.3	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	

Client Number: 26-3514 **Report Number:** 20-06-03513

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
20-06-03513-018	110-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	
20-06-03513-019	110-W-19	Arsenic (As)	1.00	7.23	7.2	
		Barium (Ba)	1.00	149	150	
		Cadmium (Cd)	1.00	2.35	2.4	
		Chromium (Cr)	1.00	29.4	29	
		Lead (Pb)	1.00	138	140	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	<2.00	<2.0	
20-06-03513-020	110-W-20	Arsenic (As)	1.00	9.31	9.3	
		Barium (Ba)	1.00	274	270	
		Cadmium (Cd)	1.00	29.3	29	
		Chromium (Cr)	1.00	42.3	42	

Client Number: 26-3514 **Report Number:** 20-06-03513

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	179	180	
		Selenium (Se)	1.00	<5.00	<5.0	
		Silver (Ag)	1.00	3.59	3.6	
20-06-03513-021	110-W-21	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	---	
20-06-03513-022	110-W-22	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	---	

Environmental Hazards Services, L.L.C

Client Number: 26-3514 **Report Number:** 20-06-03513

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

Sample Narratives:

Analyst: Brittany Meyer

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 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

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: ☒ 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	110-W-01	6/26/2020 0751								Ag, As, Ba, Cd, Cr, Pb, Se									12 x 12
2	110-W-02	0755																	12 x 12
3	110-W-03	0805																	12 x 12
4	110-W-04	0813																	12 x 12
5	110-W-05	0815																	12 x 12
6	110-W-06	0820																	12 x 12
7	110-W-07	0824																	12 x 12
8	110-W-08	0830																	12 x 12
9	110-W-09	0836																	12 x 12
10	110-W-10	0839																	12 x 12
11	110-W-11	0843																	12 x 12
12	110-W-12	0846																	12 x 12
13	110-W-13	0854																	12 x 12
14	110-W-14	0856																	12 x 12
15	110-W-15	0903																	12 x 12

Released By: Emily Ahlemeyer Date: 6/26/2020 Time: 4:00 PM

Signature: (b) (6)

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6)

Date: 6/29/20 Time: 11:57 ☒ AM ☐ PM

☐ Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

20-06-03513

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: (X) 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	110-W-16	6/26/2020 0911								Ag, As, Ba, Cd, Cr, Pb, Se									12 x 12
2	110-W-17	0915																	12 x 12
3	110-W-18	0919																	12 x 12
4	110-W-19	0925																	12 x 12
5	110-W-20	0928																	12 x 12
6	110-W-21	0935																	NA x NA
7	110-W-22	0935																	NA x NA
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) [redacted]

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6) [redacted]

Date: 6/29/20 Time: 11:52 (X) AM ( ) PM

( ) Portal Contact Added

3513

EHS Laboratories™

Attach Laboratory Label Here

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

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) [redacted]

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

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