



July 18, 2022

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 105
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 105 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. 105 was conducted on June 8 and 9, 2022 by Ashley Anstaett & Jeff Smith of Burns & McDonnell and 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



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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 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 26 of the 33 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	<0.5	<0.5	62
Arsenic	<2.5	<2.5	62
Barium	<0.5	11.0	3,094
Cadmium	<0.1	0.4	31
Chromium (Total)	<1.0	4.2	3,094
Lead	<0.5	12.0	10 ^(d)
Selenium	<2.5	<2.5	1,236

- (a) Samples with a “<” sign indicate that the results were below the laboratory’s reporting 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) x 929cm²/sq.ft.] / 15.
- (d) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

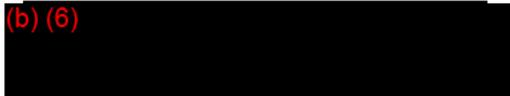
Of the 26 samples that had detectable levels of one or more analytes, 1 of them exceeded the clean area limit.

1. A sample taken from the floor near column C44 in the warehouse on the first floor had 12 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



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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*
105-W-01	1st floor, south lobby	Floor by lab processing entrance	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.1	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	0.80	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-02	1st floor, drop ceiling storage room	Floor near column G49	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.9	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	1.5	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-03	1st floor, drop ceiling storage room	Top of table stack at column G49	Arsenic	< 2.5	µg/ft ²	62
			Barium	3.1	µg/ft ²	3,094
			Cadmium	0.16	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	2.1	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-04	1st floor, warehouse	Floor at column C44	Arsenic	< 2.5	µg/ft ²	62
			Barium	11.0	µg/ft ²	3,094
			Cadmium	0.18	µg/ft ²	31
			Chromium	1.4	µg/ft ²	3,094
			Lead	12	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

Appendix A
Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-05	1st floor, warehouse	Top of filing cabinet at column D43	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.4	µg/ft ²	3,094
			Cadmium	0.14	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	1.9	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-06	1st floor, lab processing area	Steel table at column B47	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	4.2	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-07	1st floor, hallway at entrance to coolers	Floor on east side	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.6	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	1.4	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-08	1st floor, enterprise break room	Table at column D33	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.64	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-09	1st floor, column C34	Desk in cubicle	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.84	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-10	1st floor, column E36	Top of black filing cabinet	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.68	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-11	Field blank	--	Arsenic	< 2.50	µg	--
			Barium	< 0.500	µg	--
			Cadmium	< 0.100	µg	--
			Chromium	< 1.00	µg	--
			Lead	< 0.500	µg	--
			Selenium	< 2.50	µg	--
			Silver	< 0.500	µg	--
105-W-12	1st floor, column J37	Hallway floor tile	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.60	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-13	1st floor, column G28	Floor in stairwell	Arsenic	< 2.5	µg/ft ²	62
			Barium	2.6	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	3.3	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-14	1st floor, column G17	Desk	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-15	1st floor, columns C17 and C16	Top of supply table	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.56	µg/ft ²	3,094
			Cadmium	0.14	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-16	1st floor, column F16	Table with microwave	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-17	1st floor, column H11	Mail room table	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-18	1st floor, column H2	Coffee table in office	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.1	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	0.56	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-19	Field blank	--	Arsenic	< 2.50	µg	--
			Barium	< 0.500	µg	--
			Cadmium	< 0.100	µg	--
			Chromium	< 1.00	µg	--
			Lead	< 0.500	µg	--
			Selenium	< 2.50	µg	--
			Silver	< 0.500	µg	--
105-W-20	2nd floor, south end of lab	Floor tile outside restrooms	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.92	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	0.56	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-21	2nd floor, room 342	Top of desk by entrance to offices	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-22	2nd floor, room 331	Conference table	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-23	2nd floor, hallway near room 326	Floor in front of elevator	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.77	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	1.1	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-24	2nd floor, lab room 306	Sink basin on island	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.77	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	2.8	µg/ft ²	3,094
			Lead	1.2	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-25	2nd floor, lab break room	Table	Arsenic	< 2.5	µg/ft ²	62
			Barium	< 0.50	µg/ft ²	3,094
			Cadmium	0.41	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-26	Field blank ¹	--	Arsenic	< 2.50	µg	--
			Barium	1.52	µg	--
			Cadmium	< 0.100	µg	--
			Chromium	1.28	µg	--
			Lead	8.80	µg	--
			Selenium	< 2.50	µg	--
			Silver	< 0.500	µg	--
105-W-27	2nd floor, compressed gas storage	Floor in front of sticky mat	Arsenic	< 2.5	µg/ft ²	62
			Barium	2.3	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	1.6	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-28	2nd floor, compressed gas storage	Top of powerex	Arsenic	< 2.5	µg/ft ²	62
			Barium	5.6	µg/ft ²	3,094
			Cadmium	0.16	µg/ft ²	31
			Chromium	1.0	µg/ft ²	3,094
			Lead	1.7	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-29	2nd floor, lab room 337	Middle of work bench	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.50	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-30	2nd floor, offices at column B35	Top of filing cabinet	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.2	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	0.73	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-31	2nd floor, break room, column B30	Table top	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.60	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62
105-W-32	2nd floor, break room, column B30	Floor by sink	Arsenic	< 2.5	µg/ft ²	62
			Barium	0.65	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

Appendix A

Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-33	2nd floor, column C9	Desk in empty office area	Arsenic	< 2.5	µg/ft ²	62
			Barium	1.5	µg/ft ²	3,094
			Cadmium	< 0.10	µg/ft ²	31
			Chromium	< 1.0	µg/ft ²	3,094
			Lead	< 0.50	µg/ft ²	10
			Selenium	< 2.5	µg/ft ²	1,236
			Silver	< 0.50	µg/ft ²	62

¹Field blank 105-W-26 had detections of multiple analytes. The laboratory verified the reported results are accurate. However, since the other field blanks did not result in detections of any analytes, no blank correction factor was applied to the other samples.

* Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit $[(PEL (\mu\text{g}/\text{m}^3) \times 10 \text{ m}^3/100\text{cm}^2) \times 929\text{cm}^2/\text{sq. ft.}] / 15$. 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: 22-06-03543

Received Date: 06/17/2022

Analyzed Date: 06/25/2022

Reported Date: 06/27/2022

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
22-06-03543-001	105-W-01	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.14	1.1	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	0.805	0.80	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-002	105-W-02	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.92	1.9	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Lead (Pb)	1.00	1.50	1.5	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-003	105-W-03	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	3.06	3.1	L01
		Cadmium (Cd)	1.00	0.155	0.16	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	2.10	2.1	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-004	105-W-04	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	10.8	11	L01
		Cadmium (Cd)	1.00	0.185	0.18	L01
		Chromium (Cr)	1.00	1.35	1.4	L01
		Lead (Pb)	1.00	12.5	12	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-005	105-W-05	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.44	1.4	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Cadmium (Cd)	1.00	0.140	0.14	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	1.94	1.9	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-006	105-W-06	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	4.16	4.2	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-007	105-W-07	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.60	1.6	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	1.44	1.4	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
22-06-03543-008	105-W-08	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.635	0.64	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-009	105-W-09	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.845	0.84	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-010	105-W-10	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.685	0.68	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-011	105-W-11	Arsenic (As)		<2.50	---	L01
		Barium (Ba)		<0.500	---	L01
		Cadmium (Cd)		<0.100	---	L01
		Chromium (Cr)		<1.00	---	L01
		Lead (Pb)		<0.500	---	L01
		Selenium (Se)		<2.50	---	L01
		Silver (Ag)		<0.500	---	L01
22-06-03543-012	105-W-12	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.605	0.60	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-013	105-W-13	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	2.58	2.6	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	3.30	3.3	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-014	105-W-14	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-015	105-W-15	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.560	0.56	L01
		Cadmium (Cd)	1.00	0.140	0.14	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-016	105-W-16	Arsenic (As)	1.00	<2.50	<2.5	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-017	105-W-17	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-018	105-W-18	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.13	1.1	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	0.555	0.56	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-019	105-W-19	Arsenic (As)		<2.50	---	L01
		Barium (Ba)		<0.500	---	L01
		Cadmium (Cd)		<0.100	---	L01
		Chromium (Cr)		<1.00	---	L01
		Lead (Pb)		<0.500	---	L01
		Selenium (Se)		<2.50	---	L01
		Silver (Ag)		<0.500	---	L01
22-06-03543-020	105-W-20	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.925	0.92	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	0.565	0.56	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-021	105-W-21	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-022	105-W-22	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-023	105-W-23	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.770	0.77	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	1.08	1.1	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-024	105-W-24	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.770	0.77	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	2.82	2.8	L01
		Lead (Pb)	1.00	1.22	1.2	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-025	105-W-25	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	<0.500	<0.50	L01
		Cadmium (Cd)	1.00	0.410	0.41	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-026	105-W-26	Arsenic (As)		<2.50	---	L01
		Barium (Ba)		1.52	---	L01
		Cadmium (Cd)		<0.100	---	L01
		Chromium (Cr)		1.28	---	L01
		Lead (Pb)		8.80	---	L01
		Selenium (Se)		<2.50	---	L01
		Silver (Ag)		<0.500	---	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
22-06-03543-027	105-W-27	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	2.26	2.3	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	1.65	1.6	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-028	105-W-28	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	5.64	5.6	L01
		Cadmium (Cd)	1.00	0.155	0.16	L01
		Chromium (Cr)	1.00	1.05	1.0	L01
		Lead (Pb)	1.00	1.74	1.7	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-029	105-W-29	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.500	0.50	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-030	105-W-30	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.20	1.2	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	0.730	0.73	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-031	105-W-31	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.595	0.60	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-032	105-W-32	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.650	0.65	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
22-06-03543-033	105-W-33	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	1.46	1.5	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	<0.500	<0.50	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 22-06-03543

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:

L01: LCS and/or LCSD percent recoveries for Se were outside acceptable control limits.

Analyst: Anthony Dee

Method: Mercury (Hg): EPA SW846 7471B

All other metals: EPA SW846 3050B/6010D



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 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. These sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. 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

Pg 1 of 3

Company Name	Burns & McDonnell	Account #	26-3514
Company Address	9400 Ward Parkway	City/State/Zip	Kansas City, MO 64114
Phone	314-302-4661	Email	eapulcher@burnsmcd.com
Project Name / Testing Address		GFC / 4300 Goodfellow Blvd	
PO Number	168765	Collected By	<i>Jeff Smith</i>
Turn-Around Time	<input checked="" type="radio"/> 5 DAY <input 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 AREA Circle The Unit of Measurement Used 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 Mins.		Flow Rate L/min.
1	105-W-01	6-8-22 0935							Ag, As, Ba, Cd, Cr, Pb, Se									12 x 12
2	-02	0937																12 x 12
3	-03	0940																12 x 12
4	-04	0943																12 x 12
5	-05	0947																12 x 12
6	-06	0950																12 x 12
7	-07	0955																12 x 12
8	-08	0958																12 x 12
9	-09	1018																12 x 12
10	-10	1022																12 x 12
11	-11	1025																- x -
12	-12	1036																12 x 12
13	-13	1041																12 x 12
14	-14	1044																12 x 12
15	-15	1047																12 x 12

Released By:	<i>Jeff Smith</i>	Date:	6-9-22	Time:	1100
Signature:	(b) (6)				

LAB USE ONLY - BELOW THIS LINE

Received By: *T. Huh*

Signature: (b) (6)

Date: 6/17/22 Time: 12:30 AM PM

Portal Contact Added

22-06-03543

Due Date:
06/24/2022
(Friday)
EL MM-L

ENVIRONMENTAL HAZARDOUS SERVICES, LLC

Metals Chain of Custody Form

Company Name: Burns & McDonnell Phone: 26-3514
 Company Address: 9400 Ward Parkway City/State/Zip: Kansas City, MO 64114
 Phone: 314-302-4661 Email: eapulcher@burnsmcd.com

Project Name / Testing Address: GFC / 4300 Goodfellow Blvd
 PO Number: 168765 Collected By: _____
 Turn-Around Time: 5 DAY 3 DAY 2 DAY 1 DAY SAME DAY OR WEEKEND - Must Call Ahead

Client Sample ID	Collection Date & Time	METALS						Other Metals	PARTICULATES				AIR			WIPES AREA Circle The Unit of Measurement Used cm or in		
		Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	Pb, Cu, Ni, Zn		Cd, Cr, Mn, Ni, V	Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM-10	Total Time		Flow Rate	Vol
105-W-31	6-9-22 0859							Ag, As, Ba, Cd, Cr, Pb, Se										12 x 12
-32	↓ 0902																	12 x 12
-33	↓ 0905																	12 x 12
																		X
																		X
																		X
																		X
																		X
																		X
																		X
																		X
																		X
																		X
																		X
																		X

Released By: Jeff Smith Date: 6-9-22 Time: 1100
 Signature: (b) (6)

LAB USE ONLY - BELOW THIS LINE

Received By: T. H. W.
 Signature: (b) (6)
 Date: 6/17/22 Time: 12:30 AM PM
 Portal Contact Added
 7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010
 RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

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