July 13, 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 – 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 21 and June 22, 2021 by Emily Ahlemeyer and Ashley Anstaett of Burns & McDonnell.

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 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 32 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	<0.5	37.0	62
Arsenic	<2.5	3.1	62
Barium	<0.5	86.0	3,094
Cadmium	<0.1	32.0	31
Chromium (Total)	<1.0	38.0	3,094
Lead	<0.5	1400.0	10 [(d)]
Selenium	<2.5	<6.7	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/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, 6 of them exceeded the clean area limit.

1. A sample taken from the floor in room 320 (gas storage area) on the second floor had 1,400 µg/ft² of lead and 32 µg/ft² of cadmium.
2. A sample taken from the base of the lab sink in lab room 306 on the second floor had 41 µg/ft² of lead.
3. A sample taken from the floor in the sink area by the discard refrigerator in the lab processing area of the first floor had 69 µg/ft² of lead.
4. A sample taken from the floor near the trash cans by column C45 in the warehouse of the first floor had 22 µg/ft² of lead.
5. A sample taken from the floor near the mechanical room by column B6 on the first floor had 15 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*
105-W-01	2nd floor, lab room 340	Sample prep cart 1	Arsenic	< 2.5	µg/ft^2	62
			Barium	0.78	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	1.5	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-02	2nd floor, conference room 330	Table top	Arsenic	< 2.5	µg/ft^2	62
			Barium	0.95	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-03	2nd floor, lab room 329	Floor near center table	Arsenic	< 2.5	µg/ft^2	62
			Barium	4.6	µg/ft^2	3,094
			Cadmium	0.43	µg/ft^2	31
			Chromium	1.4	µg/ft^2	3,094
			Lead	3.6	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	4.5	µg/ft^2	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-04	2nd floor, lab room 349	Seat of chair at east desk	Arsenic	< 2.5	µg/ft^2	62
			Barium	12	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-05	2nd floor, room 320 (gas storage)	North floor area	Arsenic	3.1	µg/ft^2	62
			Barium	86	µg/ft^2	3,094
			Cadmium	32	µg/ft^2	31
			Chromium	38	µg/ft^2	3,094
			Lead	1400	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	34	µg/ft^2	62
105-W-06	2nd floor, lab room 318	Door push bar	Arsenic	< 2.7	µg/ft^2	62
			Barium	< 1.3	µg/ft^2	3,094
			Cadmium	< 0.27	µg/ft^2	31
			Chromium	< 2.7	µg/ft^2	3,094
			Lead	< 1.3	µg/ft^2	10
			Selenium	< 6.7	µg/ft^2	1,236
			Silver	< 1.3	µg/ft^2	62

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Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-07	2nd floor, lab room 313	Floor under southwest desk	Arsenic	< 2.5	µg/ft^2	62
			Barium	8.6	µg/ft^2	3,094
			Cadmium	0.36	µg/ft^2	31
			Chromium	2.2	µg/ft^2	3,094
			Lead	2.4	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-08	2nd floor, lab room 306	Base of northwest sink	Arsenic	< 2.5	µg/ft^2	62
			Barium	15	µg/ft^2	3,094
			Cadmium	0.22	µg/ft^2	31
			Chromium	15	µg/ft^2	3,094
			Lead	41	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	37	µg/ft^2	62
105-W-09	2nd floor, west hallway	Ledge near northwest sink	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-10	2nd floor, lab room 359	Floor in northwest corner	Arsenic	< 2.5	µg/ft^2	62
			Barium	4.0	µg/ft^2	3,094
			Cadmium	0.46	µg/ft^2	31
			Chromium	1.0	µg/ft^2	3,094
			Lead	2.8	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, lab processing	Desk under phone near column B48	Arsenic	< 2.5	µg/ft^2	62
			Barium	1.5	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	5.2	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

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-13	1st floor, lab processing	Floor in sink area by discard fridge	Arsenic	2.5	µg/ft^2	62
			Barium	48	µg/ft^2	3,094
			Cadmium	1.2	µg/ft^2	31
			Chromium	13	µg/ft^2	3,094
			Lead	69	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	0.52	µg/ft^2	62
105-W-14	1st floor, warehouse, column H2	FedEx machine	Arsenic	< 2.5	µg/ft^2	62
			Barium	7.0	µg/ft^2	3,094
			Cadmium	0.45	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	0.57	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-15	1st floor, warehouse, column C45	Floor near trash cans	Arsenic	< 2.5	µg/ft^2	62
			Barium	20	µg/ft^2	3,094
			Cadmium	0.56	µg/ft^2	31
			Chromium	3.8	µg/ft^2	3,094
			Lead	22	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-16	1st floor, column B42	Floor near women's restrooms	Arsenic	< 2.5	µg/ft^2	62
			Barium	0.54	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-17	1st floor, USDA mail room	Bottom shelf of table E	Arsenic	< 2.5	µg/ft^2	62
			Barium	4.0	µg/ft^2	3,094
			Cadmium	0.60	µg/ft^2	31
			Chromium	1.2	µg/ft^2	3,094
			Lead	3.2	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-18	1st floor, janitorial closet	Floor by cleaner storage shelf	Arsenic	< 2.5	µg/ft^2	62
			Barium	37	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	4.3	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-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	1st floor offices, column D21	Desk between D21 & D22	Arsenic	< 2.5	µg/ft^2	62
			Barium	20	µg/ft^2	3,094
			Cadmium	0.19	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	2.4	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-21	1st floor, New Loan Services	Conference room white board ledge	Arsenic	< 2.5	µg/ft^2	62
			Barium	11	µg/ft^2	3,094
			Cadmium	0.35	µg/ft^2	31
			Chromium	1.4	µg/ft^2	3,094
			Lead	2.3	µg/ft^2	10
			Selenium	< 2.6	µg/ft^2	1,236
			Silver	< 0.51	µg/ft^2	62

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Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
105-W-22	1st floor offices	Lactation room, top of refrigerator	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	1st floor, column B9	Inside of cabinet, break room	Arsenic	< 2.5	µg/ft^2	62
			Barium	22	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	1.8	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-24	1st floor, column B6	Floor outside mechanical room	Arsenic	< 2.5	µg/ft^2	62
			Barium	15	µg/ft^2	3,094
			Cadmium	0.70	µg/ft^2	31
			Chromium	2.2	µg/ft^2	3,094
			Lead	15	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, column H2	Cubicle N10, desk	Arsenic	< 2.5	µg/ft^2	62
			Barium	2.2	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-26	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-27	2nd floor, north janitorial closet	Floor sample	Arsenic	< 2.5	µg/ft^2	62
			Barium	6.8	µg/ft^2	3,094
			Cadmium	0.40	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	8.1	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-28	2nd floor, column B9	Window sill	Arsenic	< 2.5	µg/ft^2	62
			Barium	0.70	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	1.0	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.50	µg/ft^2	62
105-W-29	2nd floor, column B17	Break room floor by drink machine	Arsenic	< 2.5	µg/ft^2	62
			Barium	4.3	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	< 1.0	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
105-W-30	2nd floor, column E21	Elevated cubicle desk	Arsenic	< 2.5	µg/ft^2	62
			Barium	0.67	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-31	2nd floor, column G27	Floor in hallway	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
105-W-32	2nd floor, column E37	Conference room TV stand	Arsenic	< 2.5	µg/ft^2	62
			Barium	2.4	µg/ft^2	3,094
			Cadmium	< 0.10	µg/ft^2	31
			Chromium	< 1.0	µg/ft^2	3,094
			Lead	0.84	µg/ft^2	10
			Selenium	< 2.5	µg/ft^2	1,236
			Silver	< 0.5	µg/ft^2	62

* 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: 21-06-04560

Received Date: 06/29/2021
Analyzed Date: 07/06/2021
Reported Date: 07/07/2021

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
21-06-04560-001	105-W-01	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.780	0.78	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	1.48	1.5	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
21-06-04560-002	105-W-02	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.950	0.95	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01

Client Number: 26-3514 **Report Number:** 21-06-04560

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
21-06-04560-003	105-W-03	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	4.58	4.6	L01
		Cadmium (Cd)	1.00	0.430	0.43	L01
		Chromium (Cr)	1.00	1.36	1.4	L01
		Lead (Pb)	1.00	3.65	3.6	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	4.47	4.5	L01
21-06-04560-004	105-W-04	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	12.1	12	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
21-06-04560-005	105-W-05	Arsenic (As)	1.00	3.12	3.1	L01
		Barium (Ba)	1.00	86.1	86	L01

Client Number: 26-3514 **Report Number:** 21-06-04560

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	31.6	32	L01
		Chromium (Cr)	1.00	38.3	38	L01
		Lead (Pb)	1.00	1360	1400	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	33.9	34	L01
21-06-04560-006	105-W-06	Arsenic (As)	0.375	<2.50	<2.7	L01
		Barium (Ba)	0.375	<0.500	<1.3	L01
		Cadmium (Cd)	0.375	<0.100	<0.27	L01
		Chromium (Cr)	0.375	<1.00	<2.7	L01
		Lead (Pb)	0.375	<0.500	<1.3	L01
		Selenium (Se)	0.375	<2.50	<6.7	L01
		Silver (Ag)	0.375	<0.500	<1.3	L01
21-06-04560-007	105-W-07	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	8.56	8.6	L01
		Cadmium (Cd)	1.00	0.360	0.36	L01
		Chromium (Cr)	1.00	2.22	2.2	L01
		Lead (Pb)	1.00	2.35	2.4	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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
21-06-04560-008	105-W-08	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	14.9	15	L01
		Cadmium (Cd)	1.00	0.220	0.22	L01
		Chromium (Cr)	1.00	14.8	15	L01
		Lead (Pb)	1.00	41.1	41	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	37.0	37	L01
21-06-04560-009	105-W-09	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
21-06-04560-010	105-W-10	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	4.00	4.0	L01
		Cadmium (Cd)	1.00	0.465	0.46	L01
		Chromium (Cr)	1.00	1.00	1.0	L01
		Lead (Pb)	1.00	2.77	2.8	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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
21-06-04560-011	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
21-06-04560-012	105-W-12	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	5.16	5.2	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
21-06-04560-013	105-W-13	Arsenic (As)	1.00	2.54	2.5	L01
		Barium (Ba)	1.00	48.1	48	L01
		Cadmium (Cd)	1.00	1.21	1.2	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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	12.9	13	L01
		Lead (Pb)	1.00	68.8	69	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	0.525	0.52	L01
21-06-04560-014	105-W-14	Arsenic (As)	0.993	<2.50	<2.5	L01
		Barium (Ba)	0.993	6.98	7.0	L01
		Cadmium (Cd)	0.993	0.450	0.45	L01
		Chromium (Cr)	0.993	<1.00	<1.0	L01
		Lead (Pb)	0.993	0.565	0.57	L01
		Selenium (Se)	0.993	<2.50	<2.5	L01
		Silver (Ag)	0.993	<0.500	<0.50	L01
21-06-04560-015	105-W-15	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	19.9	20	L01
		Cadmium (Cd)	1.00	0.560	0.56	L01
		Chromium (Cr)	1.00	3.84	3.8	L01
		Lead (Pb)	1.00	22.1	22	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
21-06-04560-016	105-W-16	Arsenic (As)	1.00	<2.50	<2.5	L01

Client Number: 26-3514 **Report Number:** 21-06-04560

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	0.540	0.54	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
21-06-04560-017	105-W-17	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	3.99	4.0	L01
		Cadmium (Cd)	1.00	0.595	0.60	L01
		Chromium (Cr)	1.00	1.24	1.2	L01
		Lead (Pb)	1.00	3.24	3.2	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
21-06-04560-018	105-W-18	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	36.9	37	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	4.34	4.3	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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
21-06-04560-019	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
21-06-04560-020	105-W-20	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	19.8	20	L01
		Cadmium (Cd)	1.00	0.190	0.19	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	2.44	2.4	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
21-06-04560-021	105-W-21	Arsenic (As)	0.972	<2.50	<2.5	L01
		Barium (Ba)	0.972	10.4	11	L01
		Cadmium (Cd)	0.972	0.345	0.35	L01
		Chromium (Cr)	0.972	1.32	1.4	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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)	0.972	2.21	2.3	L01
		Selenium (Se)	0.972	<2.50	<2.6	L01
		Silver (Ag)	0.972	<0.500	<0.51	L01
21-06-04560-022	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
21-06-04560-023	105-W-23	Arsenic (As)	0.993	<2.50	<2.5	L01
		Barium (Ba)	0.993	21.8	22	L01
		Cadmium (Cd)	0.993	<0.100	<0.10	L01
		Chromium (Cr)	0.993	<1.00	<1.0	L01
		Lead (Pb)	0.993	1.76	1.8	L01
		Selenium (Se)	0.993	<2.50	<2.5	L01
		Silver (Ag)	0.993	<0.500	<0.50	L01
21-06-04560-024	105-W-24	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	14.9	15	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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	0.695	0.70	L01
		Chromium (Cr)	1.00	2.17	2.2	L01
		Lead (Pb)	1.00	14.6	15	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
21-06-04560-025	105-W-25	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	2.16	2.2	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
21-06-04560-026	105-W-26	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

Client Number: 26-3514 **Report Number:** 21-06-04560

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
21-06-04560-027	105-W-27	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	6.82	6.8	L01
		Cadmium (Cd)	1.00	0.405	0.40	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	8.12	8.1	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01
21-06-04560-028	105-W-28	Arsenic (As)	0.993	<2.50	<2.5	L01
		Barium (Ba)	0.993	0.695	0.70	L01
		Cadmium (Cd)	0.993	<0.100	<0.10	L01
		Chromium (Cr)	0.993	<1.00	<1.0	L01
		Lead (Pb)	0.993	1.02	1.0	L01
		Selenium (Se)	0.993	<2.50	<2.5	L01
		Silver (Ag)	0.993	<0.500	<0.50	L01
21-06-04560-029	105-W-29	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	4.26	4.3	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01
		Chromium (Cr)	1.00	<1.00	<1.0	L01
		Lead (Pb)	1.00	1.18	1.2	L01

Client Number: 26-3514 **Report Number:** 21-06-04560
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
21-06-04560-030	105-W-30	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.670	0.67	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
21-06-04560-031	105-W-31	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	0.645	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
21-06-04560-032	105-W-32	Arsenic (As)	1.00	<2.50	<2.5	L01
		Barium (Ba)	1.00	2.40	2.4	L01
		Cadmium (Cd)	1.00	<0.100	<0.10	L01

Environmental Hazards Services, L.L.C

Client Number: 26-3514 **Report Number:** 21-06-04560

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	0.845	0.84	L01
		Selenium (Se)	1.00	<2.50	<2.5	L01
		Silver (Ag)	1.00	<0.500	<0.50	L01

Sample Narratives:

L01: The reporting limit for arsenic for all samples is 2.5 ug.

Analyst: Kailee Guthrie

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

Company Name: Burns + McDonnell | Project #: 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: Emily Ahlemeyer & Ashley Anstaett
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	105-W-01	6/22/21 1056								Ag, As, Ba, Cd Cr, Pb, Se									12 x 12
2	105-W-02	1101																	12 x 12
3	105-W-03	1105																	12 x 12
4	105-W-04	1110																	12 x 12
5	105-W-05	1114																	12 x 12
6	105-W-06	1118																	3 x 18
7	105-W-07	1122																	12 x 12
8	105-W-08	1125																	12 x 12
9	105-W-09	1128																	6 x 24
10	105-W-10	1132																	12 x 12
11	105-W-11	1133																	NA x NA
12	105-W-12	0652																	12 x 12
13	105-W-13	0656																	12 x 12
14	105-W-14	0659																	11 x 13
15	105-W-15	0702																	12 x 12

Released By: Ashley Anstaett | Date: 6/25/21 | Time: 1600
Signature: (b) (6) [redacted]

LAB USE ONLY – BELOW THIS LINE

Received By: TStone
Signature: (b) (6) [redacted]
Date: 6/29/21 Time: 12:09 ☐ AM ☑ PM

☐ Portal Contact Added

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010
RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

21-06-04560

Due Date:
07/02/2021
(Friday)
EL MM-L

Company Name: Burns + McDonnell | Code: 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: Emily Ahlemeyer & Ashley Anstaett

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	105-W-16	6/22/21 0705								Ag, As, Ba, Cd, Cr, Pb, Se									12 x 12
2	105-W-17	0709																	12 x 12
3	105-W-18	0713																	12 x 12
4	105-W-19	0714																	NA x NA
5	105-W-20	0719																	12 x 12
6	105-W-21	0724																	2 x 70
7	105-W-22	0728																	12 x 12
8	105-W-23	0733																	11 x 13
9	105-W-24	0736																	12 x 12
10	105-W-25	0741																	12 x 12
11	105-W-26	0745																	NA x NA
12	105-W-27	0745 ~~0751~~																	12 x 12
13	105-W-28	0751 ~~0756~~																	11 x 13
14	105-W-29	0756 ~~0800~~																	12 x 12
15	105-W-30	0800 ~~0804~~																	12 x 12

Released By: Ashley Anstaett | Date: 6/25/2021 | Time: 1000

Signature: (b) (6)

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6)

Date: 6/29/21 Time: 12:09 [ ] AM [X] PM

[ ] Portal Contact Added

4560

EHS Laboratories

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

Attach Laboratory Label Here

3 3

Company / Address: Burns + McDonnell 9400 Ward Parkway
Phone: 314-302-4661
Project Name / Testing Address: GFC / 4300 Goodfellow Blvd
City/State/Zip: 26-3514 Kansas City MO 64114
Email: eaahlemeyer@burnsmcd.co

PO Number: 168765
Collected By: Emily Ahlemeyer & Ashley Anstaett

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	105-W-31	6/22/21 0804								Ag, As, Ba, Cd, Cr, Pb, Se									12 x 12
2	105-W-32	↓ 0807								↓									12 x 12
3																			x
4																			x
5																			x
6																			x
7																			x
8																			x
9																			x
10																			x
11																			x
12																			x
13																			x
14																			x
15																			x

Released By: Ashley Anstaett Date: 6/25/2021 Time: 1600
Signature: (b) (6)

LAB USE ONLY – BELOW THIS LINE

Received By: TStone
Signature: (b) (6)
Date: 6/29/21 Time: 12:01 ☐ AM ☒ PM

☐ Portal Contact Added

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010
RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

4560
EHS Laboratories

Attach Laboratory Label Here