March 31, 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 – Building 104 DISC Air and Wipe Sampling Evaluation
Project No. 121244

Dear Ms. Czarnecki:

Thank you for the opportunity to provide the General Services Administration (GSA) with the above referenced environmental sampling activities. The following is our report.

INTRODUCTION

As requested, Burns & McDonnell conducted area air and dust wipe sampling and testing for the presence of six (6) of the RCRA metals including arsenic, barium, cadmium, chromium, lead, and silver within the DISC data center in Building 104 of the Goodfellow Federal Center located at 4300 Goodfellow Boulevard in St. Louis, Missouri. The purpose of the investigation was to provide sampling data regarding existing conditions to supplement previous investigation reports prepared for the facility. Air and dust wipe sampling was conducted on March 24, 2021 by Jeff Smith of OCCU-TEC.

DUST WIPE SAMPLING AND RESULTS

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.

A representative surface area of approximately one square foot (1 SF) was measured and delineated. The dust wipe samples were collected using dedicated dust wipe cloths meeting ASTM E1792 Standard. Each dust wipe cloth was pre-moistened and individually wrapped. Each sample was collected by wiping in a back and forth "S" pattern over a measured sampling area using a clean, disposable glove. Then, the wipe was folded over itself and the area was wiped again in a direction perpendicular to the first wipe orientation. Then, the wipe folded over itself again and the area was wiped around the perimeter. The wipe sample was then placed into a labeled, clean container. Dust wipe samples were submitted to Environmental Hazards Services, LLC (EHS) in Richmond, Virginia for Inductively Coupled Plasma (ICP) analysis of

metals analysis using Environmental Protection Agency (EPA) method SW846 3050B/6010D. EHS is accredited under the American Industrial Hygiene Association (AIHA) Laboratory Accreditation Program (LAP) identification number LAP-100420.

Whereas the Occupational Safety and Health Administration (OSHA) has not established regulatory limits for surface concentrations of metals, the OSHA Technical Manual Section II: Chapter 2 (III.A) describes a method for calculating "housekeeping" standards, as recommended acceptable surface limits. Brookhaven's IH75190 procedure uses the housekeeping standards to derive a lower, "clean area limit" for non-operational areas that can be accessed or contacted without special training or precautions. Burns & McDonnell calculated clean area limits for metals not included in the Brookhaven procedure, specifically barium, chromium (total), 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 15 of the 17 field samples contained concentrations of target metals above laboratory reporting limits. The following table identifies the range of results for each of the six 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	22.0	62
Arsenic	<2.0	<2.0	62
Barium	<2.0	48.0	3,094
Cadmium	<2.0	<2.0	31
Chromium (Total)	<2.0	7.7	3,094
Lead	<2.0	23.0	10 [(d)]

(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.

Four (4) dust wipe samples exceeded the lead clean area limit. Samples 104-W-04, 104-W-05, 104-W-06, and 104-W-13 resulted in lead concentrations of 20, 19, 11, and 23 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.

A summary table of all wipe sampling results by location is included in Appendix A. The complete laboratory report for the wipe sampling from EHS is attached in Appendix B.

AIR SAMPLING AND RESULTS

Air samples for RCRA metals were collected on 37-millimeter (mm) cassettes with 0.8 micrometer (µm) mixed cellulose ester (MCE) filters, using powered air sampling pumps, in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7300. The sampling strategy included collecting a minimum sample volume of 500 liters based on the calibrated pump flow rate and sample duration. Air samples were submitted under chain-of-custody to Environmental Hazards Services, LLC (EHS) in Richmond, Virginia for independent analysis of 6 RCRA metals according to NIOSH method 7300. EHS is accredited under the American Industrial Hygiene Association (AIHA) Industrial Hygiene Laboratory Accreditation Program (IHLAP) program, identification number LAP-100420.

Results of the air sampling indicate that all six (6) air samples collected from Building 104 and analyzed for RCRA metals were below laboratory reporting limits and their respective OSHA Permissible Exposure Limit (PEL), as based on a time-weighted-average.

GSA may choose to compare results with guidance limits from additional organizations for risk evaluation, including but not limited to the American Conference of Governmental Industrial Hygienists (ACGIH) and/or the World Health Organization (WHO).

A summary table of all sampling results by location is included in Appendix C. The complete laboratory report for the air sampling from EHS is attached in Appendix D.

LIMITATIONS

The scope of this assessment was limited in nature. Burns & McDonnell/OCCU-TEC collected samples from a representative number of surfaces as determined by GSA and USDA site personnel. Sample locations do not encompass all equipment surfaces at the site. Additionally, samples were only analyzed for a select number of potential contaminants. Burns & McDonnell is not responsible for potential contaminants not identified in this report.

Burns & McDonnell appreciates the opportunity to work 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 – Wipe Sampling Summary Table
- Appendix B – Wipe Sampling Laboratory Report
- Appendix C – Air Sampling Summary Table
- Appendix D – Air Sampling Laboratory Report

Information in Appendices B and D are 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 – WIPE SAMPLING SUMMARY TABLE

Appendix A
Wipe Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Silver	< 2.0	µg/ft^2	62
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Arsenic	< 2.0	µg/ft^2	62
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Barium	48	µg/ft^2	3,094
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Cadmium	< 2.0	µg/ft^2	31
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Chromium	< 2.0	µg/ft^2	3,094
104-W-01	Storage Room at Column C16	Pallet #8 - top of stacked server units	Lead	< 2.0	µg/ft^2	10
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Silver	< 2.0	µg/ft^2	62
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Arsenic	< 2.0	µg/ft^2	62
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Barium	4.3	µg/ft^2	3,094
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Cadmium	< 2.0	µg/ft^2	31
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Chromium	< 2.0	µg/ft^2	3,094
104-W-02	Storage Room at Column C16	Pallet #3 - top of stacked server units	Lead	< 2.0	µg/ft^2	10
104-W-03	Storage Room at Column C16	Middle storage shelf	Silver	< 2.0	µg/ft^2	62
104-W-03	Storage Room at Column C16	Middle storage shelf	Arsenic	< 2.0	µg/ft^2	62
104-W-03	Storage Room at Column C16	Middle storage shelf	Barium	4.7	µg/ft^2	3,094
104-W-03	Storage Room at Column C16	Middle storage shelf	Cadmium	< 2.0	µg/ft^2	31
104-W-03	Storage Room at Column C16	Middle storage shelf	Chromium	< 2.0	µg/ft^2	3,094
104-W-03	Storage Room at Column C16	Middle storage shelf	Lead	< 2.0	µg/ft^2	10
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Silver	4.7	µg/ft^2	62
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Arsenic	< 2.0	µg/ft^2	62
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Barium	32	µg/ft^2	3,094
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Cadmium	< 2.0	µg/ft^2	31
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Chromium	7.0	µg/ft^2	3,094
104-W-04	Room 4 at Column D13	Floor inside FSIS server cabinet 130-DG (operating)	Lead	20 **	µg/ft^2	10
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Silver	< 2.0	µg/ft^2	62
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Arsenic	< 2.0	µg/ft^2	62
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Barium	24	µg/ft^2	3,094
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Cadmium	< 2.0	µg/ft^2	31
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Chromium	7.7	µg/ft^2	3,094
104-W-05	Room 4 at Column D12	Top of FSIS server unit 118-DA, approx. 2' off floor (operating)	Lead	19 **	µg/ft^2	10

Appendix A
Wipe Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Silver	< 2.0	µg/ft^2	62
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Arsenic	< 2.0	µg/ft^2	62
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Barium	25	µg/ft^2	3,094
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Cadmium	< 2.0	µg/ft^2	31
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Chromium	2.1	µg/ft^2	3,094
104-W-06	Column E3 - CRAC Unit ADU #16	Top of unit at return air filter bank	Lead	11 **	µg/ft^2	10
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Silver	< 2.0	µg/ft^2	62
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Arsenic	< 2.0	µg/ft^2	62
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Barium	< 2.0	µg/ft^2	3,094
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Cadmium	< 2.0	µg/ft^2	31
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Chromium	< 2.0	µg/ft^2	3,094
104-W-07	Column E3 - CRAC Unit ADU #16	Air supply floor vent next to unit	Lead	< 2.0	µg/ft^2	10
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Silver	22	µg/ft^2	62
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Arsenic	< 2.0	µg/ft^2	62
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Barium	31	µg/ft^2	3,094
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Cadmium	< 2.0	µg/ft^2	31
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Chromium	4.0	µg/ft^2	3,094
104-W-08	Column B1 - CRAC Unit ADU #17	Top of unit at return air filter bank	Lead	8.3	µg/ft^2	10
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Silver	< 2.0	µg/ft^2	62
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Arsenic	< 2.0	µg/ft^2	62
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Barium	27	µg/ft^2	3,094
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Cadmium	< 2.0	µg/ft^2	31
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Chromium	< 2.0	µg/ft^2	3,094
104-W-09	Column B1 - CRAC Unit ADU #17	Air supply floor vent next to unit	Lead	4.2	µg/ft^2	10
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Silver	< 2.0	µg/ft^2	62
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Arsenic	< 2.0	µg/ft^2	62
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Barium	8.2	µg/ft^2	3,094
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Cadmium	< 2.0	µg/ft^2	31
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Chromium	2.6	µg/ft^2	3,094
104-W-10	Column E2 - CRAC Unit #ACU-16	Inside fan chamber - top of fan housing	Lead	< 2.0	µg/ft^2	10

Appendix A
Wipe Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-11	Column B3	Top of pallet containing stored floor panels	Silver	4.7	µg/ft^2	62
104-W-11	Column B3	Top of pallet containing stored floor panels	Arsenic	< 2.0	µg/ft^2	62
104-W-11	Column B3	Top of pallet containing stored floor panels	Barium	18	µg/ft^2	3,094
104-W-11	Column B3	Top of pallet containing stored floor panels	Cadmium	< 2.0	µg/ft^2	31
104-W-11	Column B3	Top of pallet containing stored floor panels	Chromium	< 2.0	µg/ft^2	3,094
104-W-11	Column B3	Top of pallet containing stored floor panels	Lead	7.8	µg/ft^2	10
104-W-12	Column B5	Top of abandoned/empty server cabinet	Silver	< 2.0	µg/ft^2	62
104-W-12	Column B5	Top of abandoned/empty server cabinet	Arsenic	< 2.0	µg/ft^2	62
104-W-12	Column B5	Top of abandoned/empty server cabinet	Barium	22	µg/ft^2	3,094
104-W-12	Column B5	Top of abandoned/empty server cabinet	Cadmium	< 2.0	µg/ft^2	31
104-W-12	Column B5	Top of abandoned/empty server cabinet	Chromium	< 2.0	µg/ft^2	3,094
104-W-12	Column B5	Top of abandoned/empty server cabinet	Lead	3.5	µg/ft^2	10
104-W-13	Column F5	Top of file cabinet in corner	Silver	< 2.0	µg/ft^2	62
104-W-13	Column F5	Top of file cabinet in corner	Arsenic	< 2.0	µg/ft^2	62
104-W-13	Column F5	Top of file cabinet in corner	Barium	6.4	µg/ft^2	3,094
104-W-13	Column F5	Top of file cabinet in corner	Cadmium	< 2.0	µg/ft^2	31
104-W-13	Column F5	Top of file cabinet in corner	Chromium	< 2.0	µg/ft^2	3,094
104-W-13	Column F5	Top of file cabinet in corner	Lead	23 **	µg/ft^2	10
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Silver	< 2.0	µg/ft^2	62
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Arsenic	< 2.0	µg/ft^2	62
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Barium	16	µg/ft^2	3,094
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Cadmium	< 2.0	µg/ft^2	31
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Chromium	< 2.0	µg/ft^2	3,094
104-W-14	Column F10	Floor - vinyl ramp tread from hallway	Lead	8.3	µg/ft^2	10
104-W-15	Column at C13	Floor	Silver	< 2.0	µg/ft^2	62
104-W-15	Column at C13	Floor	Arsenic	< 2.0	µg/ft^2	62
104-W-15	Column at C13	Floor	Barium	2.3	µg/ft^2	3,094
104-W-15	Column at C13	Floor	Cadmium	< 2.0	µg/ft^2	31
104-W-15	Column at C13	Floor	Chromium	< 2.0	µg/ft^2	3,094
104-W-15	Column at C13	Floor	Lead	< 2.0	µg/ft^2	10

Appendix A
Wipe Sample Summary Table

Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Silver	< 2.0	µg/ft^2	62
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Arsenic	< 2.0	µg/ft^2	62
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Barium	< 2.0	µg/ft^2	3,094
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Cadmium	< 2.0	µg/ft^2	31
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Chromium	< 2.0	µg/ft^2	3,094
104-W-16	Decommissioned Switch #0080A38959CB	Inside unit - top of large circuit board	Lead	< 2.0	µg/ft^2	10
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Silver	< 2.0	µg/ft^2	62
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Arsenic	< 2.0	µg/ft^2	62
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Barium	3.3	µg/ft^2	3,094
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Cadmium	< 2.0	µg/ft^2	31
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Chromium	2.7	µg/ft^2	3,094
104-W-17	Decommissioned Server #233500	Inside unit - top of fans and drives	Lead	< 2.0	µg/ft^2	10
104-W-18	Field Blank	--	Silver	< 2.00	µg	--
104-W-18	Field Blank	--	Arsenic	< 2.00	µg	--
104-W-18	Field Blank	--	Barium	< 2.00	µg	--
104-W-18	Field Blank	--	Cadmium	< 2.00	µg	--
104-W-18	Field Blank	--	Chromium	< 2.00	µg	--
104-W-18	Field Blank	--	Lead	< 2.00	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

µg/ft^2 - micrograms per square foot

APPENDIX B – WIPE SAMPLING LABORATORY 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: 21-03-05653

Received Date: 03/26/2021
Analyzed Date: 03/26/2021
Reported Date: 03/26/2021

Project/Test Address: 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
21-03-05653-001	104-W-01	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	48.1	48	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-002	104-W-02	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	4.27	4.3	
		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:** 21-03-05653
Project/Test Address: 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	<2.00	<2.0	
21-03-05653-003	104-W-03	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	4.66	4.7	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-004	104-W-04	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	31.6	32	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	7.03	7.0	
		Lead (Pb)	1.00	19.6	20	
		Silver (Ag)	1.00	4.69	4.7	
21-03-05653-005	104-W-05	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	24.3	24	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	7.68	7.7	
		Lead (Pb)	1.00	19.4	19	
		Silver (Ag)	1.00	<2.00	<2.0	

Client Number: 26-3514 **Report Number:** 21-03-05653

Project/Test Address: GFC; 4300 Goodfellow Blvd.

Lab Sample Number	Client Sample Number	Analyte:	Wipe Area (ft^2)	Total Metal (ug)	Concentration (ug/ft^2)	Narrative ID
21-03-05653-006	104-W-06	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	25.0	25	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	2.07	2.1	
		Lead (Pb)	1.00	10.9	11	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-007	104-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	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-008	104-W-08	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	30.6	31	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	3.99	4.0	
		Lead (Pb)	1.00	8.29	8.3	
		Silver (Ag)	1.00	22.4	22	
21-03-05653-009	104-W-09	Arsenic (As)	1.00	<2.00	<2.0	

Client Number: 26-3514 **Report Number:** 21-03-05653
Project/Test Address: 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	27.3	27	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	4.16	4.2	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-010	104-W-10	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	8.20	8.2	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	2.65	2.6	
		Lead (Pb)	1.00	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-011	104-W-11	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	18.0	18	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	7.78	7.8	
		Silver (Ag)	1.00	4.66	4.7	
21-03-05653-012	104-W-12	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	22.2	22	

Client Number: 26-3514 **Report Number:** 21-03-05653

Project/Test Address: 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	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	3.50	3.5	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-013	104-W-13	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	6.38	6.4	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	22.6	23	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-014	104-W-14	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	16.1	16	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	
		Lead (Pb)	1.00	8.33	8.3	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-015	104-W-15	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	2.28	2.3	
		Cadmium (Cd)	1.00	<2.00	<2.0	

Client Number: 26-3514 **Report Number:** 21-03-05653
Project/Test Address: 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	<2.00	<2.0	
		Lead (Pb)	1.00	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-016	104-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	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-017	104-W-17	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	3.31	3.3	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	2.70	2.7	
		Lead (Pb)	1.00	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	
21-03-05653-018	104-W-18	Arsenic (As)	1.00	<2.00	<2.0	
		Barium (Ba)	1.00	<2.00	<2.0	
		Cadmium (Cd)	1.00	<2.00	<2.0	
		Chromium (Cr)	1.00	<2.00	<2.0	

Environmental Hazards Services, L.L.C

Client Number: 26-3514 **Report Number:** 21-03-05653

Project/Test Address: 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	<2.00	<2.0	
		Silver (Ag)	1.00	<2.00	<2.0	

Sample Narratives:

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 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

Pg _____ of _____

Company Name	Burns & McDonnell / occu-Tec	Account #	26-3514
Company Address	9400 Ward Parkway	City/State/Zip	Kansas City, MO 64114
Phone	314-302-4661	Email	jsmith@occutec.com
Project Name / Testing Address	GFC - 4300 Goodfellow Blvd		
PO Number		Collected By	Jeff Smith
Turn-Around Time	○ 3 DAY ○ 2 DAY ○ 1 DAY	X	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	104-W-01	3-24-21 1400			X					Do Not Analyze for Mercury or Selenium									12 x 12
2	104-W-02																		12 x 12
3	104-W-03																		12 x 12
4	104-W-04																		12 x 12
5	104-W-05																		12 x 12
6	104-W-06																		12 x 12
7	104-W-07																		12 x 12
8	104-W-08																		12 x 12
9	104-W-09																		12 x 12
10	104-W-10																		12 x 12
11	104-W-11																		12 x 12
12	104-W-12																		12 x 12
13	104-W-13																		12 x 12
14	104-W-14																		12 x 12
15	104-W-15																		12 x 12

Released By: Jeff Smith Date: 3-25-21 Time: 12:00 pm

Signature: (b) (6) [redacted]

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6) [redacted]

Date: 3/26/21 Time: 8:45 ☒ AM ☐ PM

☐ Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

21-03-05653

Due Date:
03/26/2021
(Friday)
EL

ENVIRONMENTAL HAZARDS SERVICES, LLC

Metals Chain of Custody Form

Pg ___ of ___

Company Name	Burns & McDonnell / occu-Tec	Account #	26-3514
Company Address	9400 Ward Parkway	City/State/Zip	Kansas City, MO 64114
Phone	314-302-4661	Email	jsmith@occutec.com
Project Name / Testing Address	GFC - 4300 Goodfellow Blvd		
PO Number		Collected By	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	104-W-16	3-25-21 0800																	12 x 12
2	104-W-17	↓ ↓																	12 x 12
3	104-W-18									Do Not Analyze for Mercury or Selenium									12 x 12
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: Jeff Smith

Signature: (b) (6) [redacted]

Date: 3-25-21 Time: 12:00 pm

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6) [redacted]

Date: 3/26/21 Time: 8:45 ☒ AM ☐ PM

☐ Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

~~5647~~ (12) 5653

EHS Laboratories

Attach Laboratory Label Here

APPENDIX C – AIR SAMPLING SUMMARY TABLE

Appendix C
Air Sample Summary Table

Sample Number	Location	Analyte		Result	Units	Recommended Limits*
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Silver	<	0.48	µg/m^3	10
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Arsenic	<	2.5	µg/m^3	10
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Barium	<	0.48	µg/m^3	500
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Cadmium	<	0.48	µg/m^3	5
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Chromium	<	2.5	µg/m^3	500
104-A-01	Top of CRAC Unit - ACU #21 at Air Return Filter Bank	Lead	<	0.48	µg/m^3	50
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Silver	<	0.45	µg/m^3	10
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Arsenic	<	2.4	µg/m^3	10
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Barium	<	0.45	µg/m^3	500
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Cadmium	<	0.45	µg/m^3	5
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Chromium	<	2.4	µg/m^3	500
104-A-02	Next to CRAC Unit - ACU #21 at Air Supply Vent	Lead	<	0.45	µg/m^3	50
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Silver	<	0.46	µg/m^3	10
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Arsenic	<	2.4	µg/m^3	10
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Barium	<	0.46	µg/m^3	500
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Cadmium	<	0.46	µg/m^3	5
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Chromium	<	2.4	µg/m^3	500
104-A-03	Top of CRAC Unit - ACU #7 at Air Return Filter Bank	Lead	<	0.46	µg/m^3	50

Appendix C
Air Sample Summary Table

Sample Number	Location	Analyte		Result	Units	Recommended Limits*
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Silver	<	0.46	µg/m^3	10
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Arsenic	<	2.4	µg/m^3	10
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Barium	<	0.46	µg/m^3	500
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Cadmium	<	0.46	µg/m^3	5
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Chromium	<	2.4	µg/m^3	500
104-A-04	Next to CRAC Unit - ACU #7 at Air Supply Vent	Lead	<	0.46	µg/m^3	50
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Silver	<	0.44	µg/m^3	10
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Arsenic	<	2.3	µg/m^3	10
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Barium	<	0.44	µg/m^3	500
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Cadmium	<	0.44	µg/m^3	5
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Chromium	<	2.3	µg/m^3	500
104-A-05	Top of CRAC Unit - ACU #15 at Air Return Filter Bank	Lead	<	0.44	µg/m^3	50
104-A-06	Field Blank	Silver	<	0.25	µg	10
104-A-06	Field Blank	Arsenic	<	1.3	µg	10
104-A-06	Field Blank	Barium	<	0.25	µg	500
104-A-06	Field Blank	Cadmium	<	0.25	µg	5
104-A-06	Field Blank	Chromium	<	1.3	µg	500
104-A-06	Field Blank	Lead	<	0.25	µg	50

*Limits equal to the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs)

µg/m^3 - micrograms per cubic meter

APPENDIX D – AIR SAMPLING LABORATORY REPORT

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Air Metals Analysis Report

Client: Burns & McDonnell Engineering
9400 Ward Pkwy.
Kansas City, MO 64114

Report Number: 21-03-05648
Received Date: 03/26/2021
Reported Date: 03/26/2021

Project/Test Address: GFC; 4300 Goodfellow Blvd.

Client Number: 26-3514

Laboratory Results

Fax Number: 816-822-3494

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m³)	Narrative ID
21-03-05648-001	104-A-01	03/26/2021	Arsenic (As)	524	<1.3	<2.5	
			Barium (Ba)		<0.25	<0.48	
			Cadmium (Cd)		<0.25	<0.48	
			Chromium (Cr)		<1.3	<2.5	
			Lead (Pb)		<0.25	<0.48	
			Silver (Ag)		<0.25	<0.48	
21-03-05648-002	104-A-02	03/26/2021	Arsenic (As)	560	<1.3	<2.4	
			Barium (Ba)		<0.25	<0.45	
			Cadmium (Cd)		<0.25	<0.45	
			Chromium (Cr)		<1.3	<2.4	
			Lead (Pb)		<0.25	<0.45	
			Silver (Ag)		<0.25	<0.45	
21-03-05648-003	104-A-03	03/26/2021	Arsenic (As)	554	<1.3	<2.4	
			Barium (Ba)		<0.25	<0.46	
			Cadmium (Cd)		<0.25	<0.46	
			Chromium (Cr)		<1.3	<2.4	
			Lead (Pb)		<0.25	<0.46	

Environmental Hazards Services, L.L.C

Client Number: 26-3514 Report Number: 21-03-05648

Project/Test Address: GFC; 4300 Goodfellow Blvd.

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m³)	Narrative ID
			Silver (Ag)		<0.25	<0.46	
21-03-05648-004	104-A-04	03/26/2021	Arsenic (As)	554	<1.3	<2.4	
			Barium (Ba)		<0.25	<0.46	
			Cadmium (Cd)		<0.25	<0.46	
			Chromium (Cr)		<1.3	<2.4	
			Lead (Pb)		<0.25	<0.46	
			Silver (Ag)		<0.25	<0.46	
21-03-05648-005	104-A-05	03/26/2021	Arsenic (As)	576	<1.3	<2.3	
			Barium (Ba)		<0.25	<0.44	
			Cadmium (Cd)		<0.25	<0.44	
			Chromium (Cr)		<1.3	<2.3	
			Lead (Pb)		<0.25	<0.44	
			Silver (Ag)		<0.25	<0.44	
21-03-05648-006	104-A-06	03/26/2021	Arsenic (As)	0	<1.3	---	
			Barium (Ba)		<0.25	---	
			Cadmium (Cd)		<0.25	---	
			Chromium (Cr)		<1.3	---	
			Lead (Pb)		<0.25	---	
			Silver (Ag)		<0.25	---	

Environmental Hazards Services, L.L.C

Client Number: 26-3514 Report Number: 21-03-05648

Project/Test Address: GFC; 4300 Goodfellow Blvd.

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m³)	Narrative ID

Sample Narratives:

Method: NIOSH 7300M

Analyst: Brittany Meyer

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 25mL volume. The reporting limit is 0.05ug for Berylium, 25ug for Aluminum, Calcium, Iron and Zinc, 1.3ug for Arsenic, Chromium, Magnesium, Antimony and Selenium, and 0.25ug 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/m³ = micrograms per cubic meter
	mL = milliliter	L= Liters

ENVIRONMENTAL HAZARDS SERVICES, LLC

Metals Chain of Custody Form

Pg ___ of ___

Company Name	Burns & McDonnell / Occu-Tec	Account #	26-3514
Company Address	9400 Ward Parkway	City/State/Zip	Kansas City, MO 64114
Phone	314-302-4661	Email	jsmith@occutec.com
Project Name / Testing Address	GFC - 4300 Goodfellow Blvd		
PO Number		Collected By	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	104-A-01	3-24-21 1400			X											207	2.53	524	x
2	104-A-02	↓			↓					Do Not Analyze for Mercury or Selenium						208	2.69	560	x
3	104-A-03															206	2.69	554	x
4	104-A-04															207	2.68	554	x
5	104-A-05															205	2.81	576	x
6	104-A-06	↓			↓											—	—	—	x
7																			x
8																			x
9																			x
10																			x
11																			x
12																			x
13																			x
14																			x
15																			x

Released By: Jeff Smith Date: 3-25-21 Time: 12:00 pm

Signature: (b) (6) [redacted]

LAB USE ONLY – BELOW THIS LINE

Received By: TStone

Signature: (b) (6) [redacted]

Date: 3/26/21 Time: 8 59 ☒ AM ☐ PM

☐ Portal Contact Added

21-03-05648

Due Date: 03/26/2021 (Friday) EL

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com