



January 20, 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 – Bldg. 107 Air Sampling
Project No. 121244

Dear Ms. Czarnecki:

Thank you for the opportunity to provide the General Services Administration (GSA) with the Resource Conservation and Recovery Act (RCRA) metals air sampling investigation of the above referenced building located at the Goodfellow Federal Complex, in St. Louis, Missouri. Burns & McDonnell understands that the purpose of the investigation was to provide sampling data regarding existing conditions to supplement previous investigation reports prepared for the facility. The following report summarizes air-sample collection activities and the laboratory analytical results of the samples submitted.

METHODOLOGY

On December 11, 2020, Emily Ahlemeyer of Burns & McDonnell and Eric Wenger of Burns & McDonnell conducted area air-sampling for the presence of seven (7) of the RCRA metals including arsenic, barium, cadmium, chromium, lead, selenium, and silver. Sampling was conducted in various locations throughout Building 107.

The sampling scheme, number of samples, sample distribution, and general methodology was developed based on previous investigation methodology and in coordination with the GSA. Sample locations and samples collected from discretionary locations were determined by sampling personnel while on-site.

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 7 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.

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RESULTS AND DISCUSSION

Results of the air sampling are summarized in the table below by identifying the range of results for Building 107 for each of the seven (7) metals that were sampled. Results indicate that all 9 air samples collected from Building 107 and analyzed for RCRA metals were below their respective OSHA Permissible Exposure Limit (PEL), as based on a time-weighted-average.

Table 1. Summary of Air Sampling Results

Analyte	Lowest Concentration ^(a) ($\mu\text{g}/\text{m}^3$) ^(b)	Highest Concentration ^(a) ($\mu\text{g}/\text{m}^3$) ^(b)	Permissible Exposure Limit (PEL) ($\mu\text{g}/\text{m}^3$) ^(b)
Arsenic	<0.26	<0.27	10
Barium	<0.26	<0.27	500
Cadmium	<0.051	<0.054	5
Chromium (Total)	<1.3	<1.4	500
Lead	<0.26	1.40	50
Selenium	<1.3	<1.4	200
Silver	<0.26	<0.27	10

Notes:

- (a) Samples with a “<” sign indicate that the results were below the laboratory’s reporting limit, which varies based on sample air volume.
- (b) $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter of air.

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 A. The complete laboratory report for the air sampling from EHS is attached in Appendix B. The air sampling professional’s Missouri Lead license is included in Appendix C.

LIMITATIONS

The scope of this assessment was limited as follows. Burns & McDonnell collected samples from a select number of locations in an effort to minimize cost while providing a general overview of the air quality at the site. Sample locations do not encompass every indoor space at the site. Additionally, based on previous sampling history, samples were only analyzed for a select number of potential contaminants likely to affect the air quality at the site. Burns &



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McDonnell is not responsible for potential contaminants not identified in this report. This report was prepared for the sole use of GSA.

Burns & McDonnell appreciates the opportunity to work with the General Services Administration 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)

A large black rectangular redaction box covers the signature area, with the text "(b) (6)" written in white at the top left corner of the box.

Matt Shanahan, CHMM
Project Manager

Attachments:

- Appendix A – Results Summary by Location
- Appendix B – Air Sample Laboratory Report
- Appendix C – Licenses

Information in Appendices B and C 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 – RESULTS SUMMARY BY LOCATION

Appendix A

Results Summary by Location

Sample Number	Location	Analyte	Result	Units	Recommended Limits ¹
107-A-01	1st floor, OCCU-TEC/BMCD office	Arsenic	< 0.26	µg/m ³	10
		Barium	< 0.26	µg/m ³	500
		Cadmium	< 0.051	µg/m ³	5
		Chromium	< 1.3	µg/m ³	500
		Lead	< 0.26	µg/m ³	50
		Selenium	< 1.3	µg/m ³	200
		Silver	< 0.26	µg/m ³	10
107-A-02	1st floor, DCD conference room	Arsenic	< 0.26	µg/m ³	10
		Barium	< 0.26	µg/m ³	500
		Cadmium	< 0.051	µg/m ³	5
		Chromium	< 1.3	µg/m ³	500
		Lead	1.4	µg/m ³	50
		Selenium	< 1.3	µg/m ³	200
		Silver	< 0.26	µg/m ³	10
107-A-03	1st floor, GSA break room	Arsenic	< 0.26	µg/m ³	10
		Barium	< 0.26	µg/m ³	500
		Cadmium	< 0.052	µg/m ³	5
		Chromium	< 1.3	µg/m ³	500
		Lead	< 0.26	µg/m ³	50
		Selenium	< 1.3	µg/m ³	200
		Silver	< 0.26	µg/m ³	10
107-A-04	1st floor, GSA office, center area	Arsenic	< 0.26	µg/m ³	10
		Barium	< 0.26	µg/m ³	500
		Cadmium	< 0.052	µg/m ³	5
		Chromium	< 1.3	µg/m ³	500
		Lead	< 0.26	µg/m ³	50
		Selenium	< 1.3	µg/m ³	200
		Silver	< 0.26	µg/m ³	10
107-A-05	1st floor, GSA conference room	Arsenic	< 0.27	µg/m ³	10
		Barium	< 0.27	µg/m ³	500
		Cadmium	< 0.053	µg/m ³	5
		Chromium	< 1.4	µg/m ³	500
		Lead	< 0.27	µg/m ³	50
		Selenium	< 1.4	µg/m ³	200
		Silver	< 0.27	µg/m ³	10

Appendix A

Results Summary by Location

Sample Number	Location	Analyte	Result	Units	Recommended Limits ¹
107-A-06	2nd floor, room 241	Arsenic	< 0.27	µg/m ³	10
		Barium	< 0.27	µg/m ³	500
		Cadmium	< 0.053	µg/m ³	5
		Chromium	< 1.4	µg/m ³	500
		Lead	< 0.27	µg/m ³	50
		Selenium	< 1.4	µg/m ³	200
		Silver	< 0.27	µg/m ³	10
107-A-07	2nd floor, room 220	Arsenic	< 0.27	µg/m ³	10
		Barium	< 0.27	µg/m ³	500
		Cadmium	< 0.053	µg/m ³	5
		Chromium	< 1.4	µg/m ³	500
		Lead	< 0.27	µg/m ³	50
		Selenium	< 1.4	µg/m ³	200
		Silver	< 0.27	µg/m ³	10
107-A-08	Basement, boiler room	Arsenic	< 0.27	µg/m ³	10
		Barium	< 0.27	µg/m ³	500
		Cadmium	< 0.054	µg/m ³	5
		Chromium	< 1.4	µg/m ³	500
		Lead	< 0.27	µg/m ³	50
		Selenium	< 1.4	µg/m ³	200
		Silver	< 0.27	µg/m ³	10
107-A-09	Field blank	Arsenic	< 0.15	µg	--
		Barium	< 0.15	µg	--
		Cadmium	< 0.030	µg	--
		Chromium	< 0.75	µg	--
		Lead	< 0.15	µg	--
		Selenium	< 0.75	µg	--
		Silver	< 0.15	µg	--

Notes:

¹Limits equal to the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs)

APPENDIX B – AIR SAMPLE 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: 20-12-01830
 Received Date: 12/14/2020
 Reported Date: 12/17/2020

Project/Test Address: 168765; GFC; 4300 Goodfellow Blvd.; 107-A-01-09

Client Number:
26-3514

Fax Number:
816-822-3494

Laboratory Results

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
20-12-01830-001	107-A-01	12/16/2020	Arsenic (As)	589	<0.15	<0.26	
			Barium (Ba)		<0.15	<0.26	
			Cadmium (Cd)		<0.030	<0.051	
			Chromium (Cr)		<0.75	<1.3	
			Lead (Pb)		<0.15	<0.26	
			Selenium (Se)		<0.75	<1.3	
			Silver (Ag)		<0.15	<0.26	
20-12-01830-002	107-A-02	12/16/2020	Arsenic (As)	590	<0.15	<0.26	
			Barium (Ba)		<0.15	<0.26	
			Cadmium (Cd)		<0.030	<0.051	
			Chromium (Cr)		<0.75	<1.3	
			Lead (Pb)		0.85	1.4	
			Selenium (Se)		<0.75	<1.3	
			Silver (Ag)		<0.15	<0.26	
20-12-01830-003	107-A-03	12/16/2020	Arsenic (As)	587	<0.15	<0.26	
			Barium (Ba)		<0.15	<0.26	
			Cadmium (Cd)		<0.030	<0.052	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-12-01830

Project/Test Address: 168765; GFC; 4300 Goodfellow Blvd.; 107-A-01-09

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
			Chromium (Cr)		<0.75	<1.3	
			Lead (Pb)		<0.15	<0.26	
			Selenium (Se)		<0.75	<1.3	
			Silver (Ag)		<0.15	<0.26	
20-12-01830-004	107-A-04	12/16/2020	Arsenic (As)	581	<0.15	<0.26	
			Barium (Ba)		<0.15	<0.26	
			Cadmium (Cd)		<0.030	<0.052	
			Chromium (Cr)		<0.75	<1.3	
			Lead (Pb)		<0.15	<0.26	
			Selenium (Se)		<0.75	<1.3	
			Silver (Ag)		<0.15	<0.26	
20-12-01830-005	107-A-05	12/16/2020	Arsenic (As)	575	<0.15	<0.27	
			Barium (Ba)		<0.15	<0.27	
			Cadmium (Cd)		<0.030	<0.053	
			Chromium (Cr)		<0.75	<1.4	
			Lead (Pb)		<0.15	<0.27	
			Selenium (Se)		<0.75	<1.4	
			Silver (Ag)		<0.15	<0.27	
20-12-01830-006	107-A-06	12/16/2020	Arsenic (As)	576	<0.15	<0.27	
			Barium (Ba)		<0.15	<0.27	
			Cadmium (Cd)		<0.030	<0.053	
			Chromium (Cr)		<0.75	<1.4	
			Lead (Pb)		<0.15	<0.27	
			Selenium (Se)		<0.75	<1.4	
			Silver (Ag)		<0.15	<0.27	

Environmental Hazards Services, L.L.C

Client Number: 26-3514

Report Number: 20-12-01830

Project/Test Address: 168765; GFC; 4300 Goodfellow Blvd.; 107-A-01-09

Lab Sample Number	Client Sample Number	Analyzed Date	Analyte	Air Volume (L)	Total Metal (ug)	Concentration (ug/m ³)	Narrative ID
20-12-01830-007	107-A-07	12/16/2020	Arsenic (As)	573	<0.15	<0.27	
			Barium (Ba)		<0.15	<0.27	
			Cadmium (Cd)		<0.030	<0.053	
			Chromium (Cr)		<0.75	<1.4	
			Lead (Pb)		<0.15	<0.27	
			Selenium (Se)		<0.75	<1.4	
			Silver (Ag)		<0.15	<0.27	
20-12-01830-008	107-A-08	12/16/2020	Arsenic (As)	558	<0.15	<0.27	
			Barium (Ba)		<0.15	<0.27	
			Cadmium (Cd)		<0.030	<0.054	
			Chromium (Cr)		<0.75	<1.4	
			Lead (Pb)		<0.15	<0.27	
			Selenium (Se)		<0.75	<1.4	
			Silver (Ag)		<0.15	<0.27	
20-12-01830-009	107-A-09	12/16/2020	Arsenic (As)	--	<0.15	---	
			Barium (Ba)		<0.15	---	
			Cadmium (Cd)		<0.030	---	
			Chromium (Cr)		<0.75	---	
			Lead (Pb)		<0.15	---	
			Selenium (Se)		<0.75	---	
			Silver (Ag)		<0.15	---	

ENVIRONMENTAL HAZARDS SERVICES, LLC

Metals Chain of Custody Form

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Company Name	Burns & McDonnell	Account #	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 & Eric Wenger
Turn-Around Time	<input checked="" type="radio"/> 3 DAY <input type="radio"/> 2 DAY <input type="radio"/> 1 DAY <input type="radio"/> SAME DAY OR WEEKEND - Must Call Ahead		

LAB NUMBER	Client Sample ID	Collection Date & Time	METALS							Other Metals	PARTICULATES					AIR			WIPES AREA <small>Circle The Unit of Measurement Used cm or in</small>
			Pb TCLP	TCLP RCRA 8	RCRA 8 Total	Toxic Metal Profile	Welding Fume Profile	TX 11 TCLP	CA 17 Total		Total Nuisance Dust	Respirable Dust	TSP Gravimetric	TSP Pb	PM-10	Total Time	Flow Rate	Vol.	
																Mins.	l/min.	Total Liters	
1	107-A-01	12/11/2020 0745							Ag, As, Ba, Cd, Cr, Pb, Se						235	2.51	589	x	
2	107-A-02	0748												232	2.55	590	x		
3	107-A-03	0750												232	2.53	587	x		
4	107-A-04	0751												231	2.52	581	x		
5	107-A-05	0754												229	2.51	575	x		
6	107-A-06	0800												226	2.55	576	x		
7	107-A-07	0801												225	2.55	573	x		
8	107-A-08	0805												227	2.46	558	x		
9	107-A-09	0735												NA	NA	NA	x		
10																	x		
11																	x		
12																	x		
13																	x		
14																	x		
15																	x		

Released By:	Emily Ahlemeyer	Date:	12/11/2020	Time:	1600
Signature:	(b) (6)				

LAB USE ONLY - BELOW THIS LINE

Received By: T Stone

Signature: (b) (6)

Date: 12/14/20 Time: 1:05 AM PM

Portal Contact Added

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

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

20-12-01830

Due Date:
12/17/2020
(Thursday)
EL

APPENDIX C – LICENSES



**Missouri Department of Health
and Senior Services**

(b) (6)

Lead Occupation License - ID Badge
License Number: 080311-300001861

Lead Risk Assessor

**Eric
Wenger**

Expiration Date: 03/11/2022

STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Eric N. Wenger

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor
Category of License

Issuance Date: **3/11/2020**
Expiration Date: **3/11/2022**
License Number: **080311-300001861**

(b) (6)



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

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