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June 12, 2019

Diane Czarnecki  
Industrial Hygienist  
Facilities Management Division  
GSA Public Buildings Service - Heartland Region  
U.S. General Services Administration  
2300 Main Street, Kansas City, MO 64108

**RE: Goodfellow Federal Center  
Metals in Settled Dust Sampling – Building 105L  
4300 Goodfellow Boulevard  
St. Louis, Missouri 63120  
OCCU-TEC Project No. 919083**

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 105L located at the Goodfellow Federal Center (GFC), in St. Louis, Missouri. OCCU-TEC Inc. (OCCU-TEC) 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.

On May 30, 2019, a team of OCCU-TEC personnel including a Missouri licensed lead risk assessor conducted settled dust sampling for the presence of seven of the Resource Conservation and Recovery Act (RCRA) target metals (lead, arsenic, barium, cadmium, total chromium, selenium, and silver) from various surfaces within tenant-occupied areas within the building. 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 OCCU-TEC. Specific sample locations were determined by OCCU-TEC personnel while on-site.

### *Metals in Settled Dust Sampling*

Metals in settled dust sampling was conducted within only within tenant-occupied areas.

Dust wipe sampling was conducted in accordance with ASTM Standard E1728-16: Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination. ASTM Standard E1728-16 is consistent with the methodology described in the Housing and Urban Development Guidelines and 40 CRF 745.63. The Brookhaven National Laboratory's Surface Wipe Sampling Procedure (IH75190) was also used as a guideline.

Dust wipe sampling for the target metals was conducted on a variety of representative surfaces that have the potential of being disturbed by building occupants. A representative surface area of approximately one square foot (1 SF) was measured and delineated with pre-fabricated, disposable templates. The dust wipe samples were collected using dedicated dust wipe cloths meeting ASTM standards. Each dust wipe cloth was pre-moistened and individually wrapped. Each sample was collected by wiping in a north "S" pattern over a measured sampling area. Then, the wipe was discarded and the area was wiped again in a direction perpendicular to the first wipe orientation. The wipe samples were then placed into labeled, clean laboratory-supplied plastic centrifuge tubes with screw on caps. Dust wipe samples were submitted to Scientific Analytical Institute, Inc. (SAI) in Greensboro, North Carolina for Inductively Coupled Plasma (ICP) analysis of metals analysis using Environmental Protection Agency (EPA) method SW846 350B/7420.

Results of the dust wipe samples collected from the building indicate that all of the samples collected contained concentrations of target metals above laboratory detection 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 reportable limit.**

Analysis	Lowest Concentration (µg/sq. ft.)	Highest Concentration (µg/sq. ft.)
Silver	<0.50	<0.50
Arsenic	<2.0	<2.0
Barium	<0.75	0.84
Cadmium	<0.050	0.12
Total Chromium	<0.50	0.60
Lead	0.35	0.88
Selenium	<1.3	<1.3

The samples collected did not contain target metals above the Brookhaven recommended levels

OCCU-TEC appreciates the opportunity to work with GSA on this project. If you have any questions concerning this report, or if we may be of any additional service, please feel free to contact us.

Sincerely,

(b) (6)

Justin Arnold, CIEC  
Environmental Scientist



(b) (6)

Kevin Heriford  
Environmental Operations Manager (QA/QC)

Appendices:

- A - Sample Summary Table
- B - Laboratory Analysis Reports
- C - Licenses

(b) (7)(F)

**Figure 1: Wipe Location Maps—Bldg. 105L**

Goodfellow Federal Center  
4300 Goodfellow Boulevard  
St. Louis, Missouri  
Project Number: 919083

# Appendix

## A

### Sample Summary Table

**Goodfellow Federal Center - Building #105L - Wipe Sample Data**

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105L-W-01	B.3 4 Assembly Room	Floor Carpet	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	0.84	µg/ft <sup>2</sup>	
			Cadmium	< 0.05	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.71	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-02	B.5 7.5 Break Room	Counter	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	< 0.75	µg/ft <sup>2</sup>	
			Cadmium	0.10	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.47	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-03	A9 Training Room 5	Floor Carpet	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	0.80	µg/ft <sup>2</sup>	
			Cadmium	< 0.05	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.36	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-04	B10 Training Room 5	Table	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	< 0.75	µg/ft <sup>2</sup>	
			Cadmium	0.12	µg/ft <sup>2</sup>	** 31
			Chromium	0.60	µg/ft <sup>2</sup>	
			Lead	0.39	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-05	C0.5 - 9 Training Room 1	Floor Carpet	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	< 0.75	µg/ft <sup>2</sup>	
			Cadmium	< 0.05	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.88	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-06	D11 Training Room 2	Floor Carpet	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	< 0.75	µg/ft <sup>2</sup>	
			Cadmium	< 0.05	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.35	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105L-W-07	B0.5 - 12	Floor Carpet	Silver	< 0.50	µg/ft <sup>2</sup>	* 139/9.3
			Arsenic	< 2.00	µg/ft <sup>2</sup>	** 62
			Barium	< 0.75	µg/ft <sup>2</sup>	
			Cadmium	0.068	µg/ft <sup>2</sup>	** 31
			Chromium	< 0.50	µg/ft <sup>2</sup>	
			Lead	0.83	µg/ft <sup>2</sup>	** 200/40
			Selenium	< 1.30	µg/ft <sup>2</sup>	
105L-W-08	FB		Silver	< 0.50	µg	* 139/9.3
			Arsenic	< 2.00	µg	** 62
			Barium	< 0.75	µg	
			Cadmium	< 0.05	µg	** 31
			Chromium	< 0.50	µg	
			Lead	< 0.25	µg	** 200/40
			Selenium	< 1.30	µg	

\* Recommended Limits based on Table 3 (BNL Surface Wipe Criteria for Metals) of the Brookhaven Surface Wipe Sampling Procedure (IH75190), Rev 19: 3/4/14

\*\* Recommended Limits based on Attachment 9.3 (Required & Recommended Surface Wipe Criteria) - Brookhaven Surface Wipe Sampling Procedure (IH75190), Rev 23: 6/23/17

Indicates results at or above REL

# **Appendix**

## **B**

Laboratory  
Analytical  
Reports



# Dust Wipe Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH 7300/EPA SW-846 3050B



<b>Client:</b> Occu-Tec, Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	<b>Attn:</b> Justin Arnold	<b>Lab Order ID:</b> 71914532 <b>Date Received:</b> 05/31/2019 <b>Date Reported:</b> 06/10/2019
<b>Project:</b> 919083.001 GFC		<b>Page:</b> 1 of 3

Sample ID	Description	Area (ft <sup>2</sup> )	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft <sup>2</sup> )
Lab Sample ID	Lab Notes					
105L-W-01	B½ 4 – floor carpet	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	0.84	0.84
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	< 0.50	< 0.50
71914532IPW_1			Pb	0.25	0.71	0.71
			Se	1.3	< 1.3	< 1.3
105L-W-02	B½ 7½ counter	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.75
			Cd	0.050	0.10	0.10
			Cr	0.50	< 0.50	< 0.50
71914532IPW_2			Pb	0.25	0.47	0.47
			Se	1.3	< 1.3	< 1.3
105L-W-03	A9 – floor counter	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	0.80	0.80
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	< 0.50	< 0.50
71914532IPW_3			Pb	0.25	0.36	0.36
			Se	1.3	< 1.3	< 1.3

Melissa Ferrell

**Analyst**

(b) (6)

**Lab Director**

\* SAI is AIHA ELLAP accredited for Pb only for dust wipe metals.

Unless otherwise noted blank sample correction was not performed on analytical results. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. MDLs are available upon request. Time-weighted average (TWA) calculations are based on customer supplied data and valid only for samples included in the specified TWA group. Scientific Analytical Institute participates in the AIHA ELPAT program. ELPAT Laboratory ID: 173190.



# Dust Wipe Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH 7300/EPA SW-846 3050B



<b>Client:</b> Occu-Tec, Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	<b>Attn:</b> Justin Arnold	<b>Lab Order ID:</b> 71914532 <b>Date Received:</b> 05/31/2019 <b>Date Reported:</b> 06/10/2019
<b>Project:</b> 919083.001 GFC		<b>Page:</b> 2 of 3

Sample ID	Description	Area (ft <sup>2</sup> )	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft <sup>2</sup> )
Lab Sample ID	Lab Notes					
105L-W-04	B10 - table	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.75
			Cd	0.050	0.12	0.12
			Cr	0.50	0.60	0.60
			Pb	0.25	0.39	0.39
71914532IPW_4			Se	1.3	< 1.3	< 1.3
105L-W-05	C ½ 9 – floor carpet	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.75
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	< 0.50	< 0.50
			Pb	0.25	0.88	0.88
71914532IPW_5			Se	1.3	< 1.3	< 1.3
105L-W-06	D11 – floor carpet	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.75
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	< 0.50	< 0.50
			Pb	0.25	0.35	0.35
71914532IPW_6			Se	1.3	< 1.3	< 1.3

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**Analyst**

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**Lab Director**

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# Dust Wipe Metals Concentration by Inductively-Coupled Plasma Analysis (ICP)

NIOSH 7300/EPA SW-846 3050B



<b>Client:</b> Occu-Tec, Inc. 2604 NE Industrial Drive, Suite 230 North Kansas City, MO 64117	<b>Attn:</b> Justin Arnold	<b>Lab Order ID:</b> 71914532 <b>Date Received:</b> 05/31/2019 <b>Date Reported:</b> 06/10/2019
<b>Project:</b> 919083.001 GFC		<b>Page:</b> 3 of 3

Sample ID	Description	Area (ft <sup>2</sup> )	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft <sup>2</sup> )
Lab Sample ID	Lab Notes					
105L-W-07	B½ 12 – floor carpet	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.75
			Cd	0.050	0.068	0.068
			Cr	0.50	< 0.50	< 0.50
71914532IPW_7			Pb	0.25	0.85	0.85
			Se	1.3	< 1.3	< 1.3
105L-W-08	FB	-	Ag	0.50	< 0.50	--
			As	2.0	< 2.0	--
			Ba	0.75	< 0.75	--
			Cd	0.050	< 0.050	--
			Cr	0.50	< 0.50	--
71914532IPW_8			Pb	0.25	< 0.25	--
			Se	1.3	< 1.3	--

Melissa Ferrell

**Analyst**

(b) (6)

**Lab Director**

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**Lab Use Only**  
 Lab Order ID: 71914532  
 Client Code: \_\_\_\_\_

Company Contact Information	
Company: OCCU-TEC Inc.	Contact: Justin Arnold
Address: 2604 NE Industrial Drive, Suite 230	Phone ☐: 816-810-3276
North Kansas City, MO 64117	Fax ☐: 816-994-3478
	Email : jarnold@occutec.com

Industrial Hygiene Test Types	
Silica as Alpha Quartz (XSZ)* ☐ With Respirable Dust (XDZ) ☐	
Silica as Cristobalite (XSC)* ☐ With Respirable Dust (XDC) ☐	
Silica as Tridymite (XST)* ☐ With Respirable Dust (XDT) ☐	
Silica as Alpha Quartz, Cristobalite, Tridymite (XSA)* ☐ With Respirable Dust (XDA) ☐	
Silica Bulk (XSI)*	☐
Bulk Phase ID/Whole Rock (XUK)	☐
Total Dust NIOSH Method 0500 (GTD)	☐
Respirable Dust NIOSH Method 0600 (GRD)	☐
PCM NIOSH 7400-A Rules (PCM)	☐
B Rules (PCB) ☐ TWA (PTA) ☐	
TEM NIOSH 7402 (Asbestos) (TNI)	☐
Hexavalent Chromium (OSHA ID-215) (Note if from spray paint operations)	☐
Metals (NIOSH 7300) (Specify Metals Under Comments)	☐
Other 6010 C	<input checked="" type="checkbox"/>

\* Modified NIOSH 7500/OSHA ID 142

Billing/Invoice Information	Turn Around Times <sup>^</sup>	
SAME <input checked="" type="checkbox"/>	90 Min. ☐	48 Hours ☐
Company:	3 Hours ☐	72 Hours ☐
Contact:	6 Hours ☐	96 Hours ☐
Address:	12 Hours ☐	120 Hours <input checked="" type="checkbox"/>
	24 Hours ☐	144 <sup>+</sup> Hours ☐
	<sup>^</sup> TATs not available for certain test types	
PO Number:		
Project Name/Number: 919083.001 GFC		

Sample ID #	Description/Location	Volume/Area	Comments
105L-W-01	B½ 4 - floor carpet	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-02	B½ 7½ counter	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-03	A9 - floor carpet	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-04	B10 - table	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-05	C½ 9 - floor carpet	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-06	D11 - floor carpet	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-07	B½ 12 - floor carpet	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
105L-W-08	FB	N/A	Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se

**Accepted**   
**Rejected**

Total # of Samples \_\_\_\_\_

Relinquished by	Date/Time	Received by	Date/Time
(b) (6)	5/30/19 16:00	(b) (6)	5/31 10:30 DA

# **Appendix**

## **C**

Qualifications and  
Licenses

**STATE OF MISSOURI**  
**DEPARTMENT OF HEALTH AND SENIOR SERVICES**

**LEAD OCCUPATION LICENSE REGISTRATION**

Issued to:

**Justin E. Arnold**

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: **6/11/2018**  
Expiration Date: **6/11/2020**  
License Number: **120611-300003622**

(b) (6)



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