OCCU-TEC

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June 11, 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 104F
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 104F 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 [redacted]th "S" pattern over a measured sampling area. Then, the wipe [redacted] the area was wiped again in a direction perpendicular to the fi[redacted]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 seven (7) of the eight (8) samples 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	100.0
Cadmium	<0.050	0.23
Total Chromium	<0.50	0.96
Lead	<0.25	5.2
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 Sample Location Maps—Bldg. 104F
Goodfellow Federal Center
4300 Goodfellow Boulevard
St. Louis, Missouri
Project Number: 919083

Appendix A

Sample Summary Table

Goodfellow Federal Center - Building # 104F - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Recommended Limits**
104F-W-01	Lower Level L36	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	2.10	µg/ft^2	
			Cadmium	< 0.05	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	
			Lead	< 0.25	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-02	Lower Level O34	Desk	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	8.00	µg/ft^2	
			Cadmium	0.23	µg/ft^2	** 31
			Chromium	0.96	µg/ft^2	
			Lead	2.30	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-03	Lower Level M32	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	100.00	µg/ft^2	
			Cadmium	0.099	µg/ft^2	** 31
			Chromium	0.51	µg/ft^2	
			Lead	4.80	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-04	Lower Level O28	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	< 0.75	µg/ft^2	
			Cadmium	0.054	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	
			Lead	< 0.25	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-05	Upper Level P28	Window Sill	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	1.70	µg/ft^2	
			Cadmium	0.10	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	
			Lead	5.20	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-06	Upper Level O30	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	0.96	µg/ft^2	
			Cadmium	< 0.05	µg/ft^2	** 31
			Chromium	0.72	µg/ft^2	
			Lead	0.68	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-07	Upper Level P34	Table Top	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	< 0.75	µg/ft^2	
			Cadmium	< 0.05	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
			Lead	< 0.25	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-08	Upper Level M36	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.00	µg/ft^2	** 62
			Barium	< 0.76	µg/ft^2	
			Cadmium	0.05	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	
			Lead	< 0.25	µg/ft^2	** 200/40
			Selenium	< 1.30	µg/ft^2	
104F-W-09	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

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**71914631**
	100 NW Business Park Ln.			**Date Received:**	**05/31/2019**
	Riverside, MO 64150			**Date Reported:**	**06/10/2019**
Project:	**919083.001 GFC**			**Page:**	**1 of 3**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104F-W-01	LL L36 - Floor	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	2.1	2.1
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	< 0.50	< 0.50
71914631IPW_1			Pb	0.25	< 0.25	< 0.25
			Se	1.3	< 1.3	< 1.3
104F-W-02	LL O34 - Desk	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	8.0	8.0
			Cd	0.050	0.23	0.23
			Cr	0.50	0.96	0.96
71914631IPW_2			Pb	0.25	2.3	2.3
			Se	1.3	< 1.3	< 1.3
104F-W-03	LL M32 - Floor	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	100	100
			Cd	0.050	0.099	0.099
			Cr	0.50	0.51	0.51
71914631IPW_3			Pb	0.25	4.8	4.8
			Se	1.3	< 1.3	< 1.3

Melissa Ferrell

Analyst

(b) (6) [redacted]

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

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**71914631**
	100 NW Business Park Ln.			**Date Received:**	**05/31/2019**
	Riverside, MO 64150			**Date Reported:**	**06/10/2019**
Project:	**919083.001 GFC**			**Page:**	**2 of 3**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104F-W-04	LL O28 - Floor	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	0.054	0.054
			Cr	0.50	< 0.50	< 0.50
71914631IPW_4			Pb	0.25	< 0.25	< 0.25
			Se	1.3	< 1.3	< 1.3
104F-W-05	UL P28 – Window Sill	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	1.7	1.7
			Cd	0.050	0.10	0.10
			Cr	0.50	< 0.50	< 0.50
71914631IPW_5			Pb	0.25	5.2	5.2
			Se	1.3	< 1.3	< 1.3
104F-W-06	UL O30 - Floor	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	0.96	0.96
			Cd	0.050	< 0.050	< 0.050
			Cr	0.50	0.72	0.72
71914631IPW_6			Pb	0.25	0.68	0.68
			Se	1.3	< 1.3	< 1.3

Melissa Ferrell

Analyst

(b) (6) [redacted]

Lab Director

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

NIOSH 7300/EPA SW-846 3050B

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**71914631**
	100 NW Business Park Ln.			**Date Received:**	**05/31/2019**
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Project:	**919083.001 GFC**			**Page:**	**3 of 3**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104F-W-07	UL P34 – Table Top	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
71914631IPW_7			Pb	0.25	< 0.25	< 0.25
			Se	1.3	< 1.3	< 1.3
104F-W-08	UL M36 - Floor	1	Ag	0.50	< 0.50	< 0.50
			As	2.0	< 2.0	< 2.0
			Ba	0.75	< 0.75	< 0.76
			Cd	0.050	0.050	0.050
			Cr	0.50	< 0.50	< 0.50
71914631IPW_8			Pb	0.25	< 0.25	< 0.25
			Se	1.3	< 1.3	< 1.3
104F-W-09	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	--
71914631IPW_9			Pb	0.25	< 0.25	--
			Se	1.3	< 1.3	--

Melissa Ferrell

Analyst

(b) (6) [redacted]

Lab Director

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Scientific Analytical Institute, Inc.
4604 Dundas Dr. Greensboro, NC 27407
Phone: 336.292.3888 Fax: 336.292.3313
www.sailab.com lab@sailab.com

Lab Use Only
Lab Order ID: 719|4631
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

Billing/Invoice Information

SAME ■

Company:

Contact:

Address:

Turn Around Times^

90 Min.	☐	48 Hours	☐
3 Hours	☐	72 Hours	☐
6 Hours	☐	96 Hours	☐
12 Hours	☐	120 Hours	■
24 Hours	☐	144+Hours	☐

^TATs not available for certain test types

PO Number:

Project Name/Number: 919083.001 GFC

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	☒

* Modified NIOSH 7500/OSHA ID 142

Sample ID #	Description/Location	Volume/Area	Comments
104F-W-01	LL L36 - floor	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-02	LL 034 - desk	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-03	LL M32 - floor	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-04	LL 028 - floor	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-05	UL P28 - window sill	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-06	UL 030 - floor	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-07	UL P34 - table top	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-08	UL M36 - floor	1 sf	Ag, As, Ba, Cd, Cr, Pb, Se
104F-W-09	FB Accepted ☑	N/A	Ag, As, Ba, Cd, Cr, Pb, Se
	Rejected ☐		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

Total # of Samples _____

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

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) [redacted]

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

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