

October 31, 2018

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 105
4300 Goodfellow Boulevard
St. Louis, Missouri 63120
OCCU-TEC Project No. 918004.002**

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. 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 September 18, 2018, 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 mechanical rooms, basements, penthouses, stairwells leading to and from basements or penthouses, and the sub-floor below the raised flooring. The purpose of this testing was to further characterize the presence and concentration of target metals in areas of the buildings that have had little or no previous testing.

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 mechanical rooms, basements, penthouses, stairwells leading to and from basements or penthouses, and the sub-floor below raised flooring.

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 during routine janitorial work, and planned maintenance or renovation projects within the building. 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 back and forth "S" pattern over a measured sampling area. Then, the wipe was folded over itself 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 the 25 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	3.90
Arsenic	<0.25	8.40
Barium	11.00	320.00
Cadmium	0.57	100.00
Total Chromium	3.00	68.00
Lead	19.00	1100.00
Selenium	<0.50	<0.50

* Please note, these results may indicate higher than expected reporting limits due to interferences from other metals. Please refer to the laboratory reports for specific information.

Many of the samples collected contained target metals above the Brookhaven recommended levels. Based on the results of the sampling, all the subject building areas should be presumed to contain measurable levels of RCRA metals and proper precautions should be taken upon entry and exit of the subject areas to protect workers and limit the spread of dust to the outside environment.

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)

Jeff T. Smith
Senior Project Manager

(b) (6)

Kevin Heriford
Project Manager (QA/QC)

Appendices:

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

Appendix

A

Sample Summary Table

Goodfellow Federal Center - Building # 105 - Wipe Sample Data

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105-01	Basement at Column J-27	Floor	Silver	0.60	µg/ft ²	* 139/9.3
			Arsenic	< 2.50	µg/ft ²	** 62
			Barium	64.00	µg/ft ²	
			Cadmium	5.00	µg/ft ²	** 31
			Chromium	29.00	µg/ft ²	
			Lead	160.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	
105-02	Basement at Column E-27	Top of Water Softener	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	15.00	µg/ft ²	
			Cadmium	32.00	µg/ft ²	** 31
			Chromium	16.00	µg/ft ²	
			Lead	120.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-03	Basement at Column J-27	Stair Landing	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 2.50	µg/ft ²	** 62
			Barium	28.00	µg/ft ²	
			Cadmium	1.80	µg/ft ²	** 31
			Chromium	11.00	µg/ft ²	
			Lead	59.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	
105-04	Basement at Column J-45	Stairwell - Middle Landing	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	61.00	µg/ft ²	
			Cadmium	0.57	µg/ft ²	** 31
			Chromium	18.00	µg/ft ²	
			Lead	280.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-05	Basement at Column H-41	Floor	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	1.90	µg/ft ²	** 62
			Barium	33.00	µg/ft ²	
			Cadmium	2.30	µg/ft ²	** 31
			Chromium	7.40	µg/ft ²	
			Lead	910.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-06	Basement at Column C-46	Floor	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 2.50	µg/ft ²	** 62
			Barium	140.00	µg/ft ²	
			Cadmium	2.20	µg/ft ²	** 31
			Chromium	20.00	µg/ft ²	
			Lead	700.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105-07	Basement at Column E-43	Floor	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	51.00	µg/ft ²	
			Cadmium	0.73	µg/ft ²	** 31
			Chromium	7.40	µg/ft ²	
			Lead	740.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-08	Fan Room 41/42	Top of Duct	Silver	2.90	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	190.00	µg/ft ²	
			Cadmium	19.00	µg/ft ²	** 31
			Chromium	31.00	µg/ft ²	
			Lead	240.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-09	Chiller Room at Column B-5	Floor	Silver	1.40	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	35.00	µg/ft ²	
			Cadmium	6.10	µg/ft ²	** 31
			Chromium	6.00	µg/ft ²	
			Lead	20.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-10	Chiller Room at Column A1/2-3	Top of AHU	Silver	0.79	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	56.00	µg/ft ²	
			Cadmium	3.00	µg/ft ²	** 31
			Chromium	22.00	µg/ft ²	
			Lead	71.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-11	Mechanical Room at Column B-38	Floor	Silver	3.90	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	71.00	µg/ft ²	
			Cadmium	1.90	µg/ft ²	** 31
			Chromium	4.90	µg/ft ²	
			Lead	30.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-12	Mechanical Room at Column A-38	Top of AHU	Silver	1.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	320.00	µg/ft ²	
			Cadmium	100.00	µg/ft ²	** 31
			Chromium	13.00	µg/ft ²	
			Lead	94.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105-13	Penthouse - Stairs at Column A-44	Middle Landing	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	20.00	µg/ft ²	
			Cadmium	0.79	µg/ft ²	** 31
			Chromium	3.70	µg/ft ²	
			Lead	35.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-14	Penthouse - Stairs at Column B-44	Top Landing	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	11.00	µg/ft ²	
			Cadmium	1.50	µg/ft ²	** 31
			Chromium	3.00	µg/ft ²	
			Lead	19.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-15	Penthouse L	Top of AHU	Silver	3.70	µg/ft ²	* 139/9.3
			Arsenic	< 2.50	µg/ft ²	** 62
			Barium	230.00	µg/ft ²	
			Cadmium	35.00	µg/ft ²	** 31
			Chromium	23.00	µg/ft ²	
			Lead	110.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	
105-16	Penthouse G	Floor	Silver	1.00	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	75.00	µg/ft ²	
			Cadmium	2.60	µg/ft ²	** 31
			Chromium	6.70	µg/ft ²	
			Lead	140.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-17	Penthouse D	Top of Duct	Silver	1.20	µg/ft ²	* 139/9.3
			Arsenic	8.40	µg/ft ²	** 62
			Barium	180.00	µg/ft ²	
			Cadmium	7.00	µg/ft ²	** 31
			Chromium	40.00	µg/ft ²	
			Lead	240.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-18	Penthouse C	Top of AHU	Silver	0.51	µg/ft ²	* 139/9.3
			Arsenic	3.40	µg/ft ²	** 62
			Barium	220.00	µg/ft ²	
			Cadmium	18.00	µg/ft ²	** 31
			Chromium	52.00	µg/ft ²	
			Lead	400.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105-19	Penthouse B Entrance	Floor	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	0.29	µg/ft ²	** 62
			Barium	41.00	µg/ft ²	
			Cadmium	1.70	µg/ft ²	** 31
			Chromium	5.00	µg/ft ²	
			Lead	26.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-20	Penthouse B	Stairwell - Top Landing	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	31.00	µg/ft ²	
			Cadmium	1.20	µg/ft ²	** 31
			Chromium	3.50	µg/ft ²	
			Lead	20.00	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	
105-21	2nd Floor at Column J-10	Floor (under raised floor)	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	91.00	µg/ft ²	
			Cadmium	9.00	µg/ft ²	** 31
			Chromium	10.00	µg/ft ²	
			Lead	130.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-22	2nd Floor at Column F-38	Floor (under raised floor)	Silver	1.00	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	71.00	µg/ft ²	
			Cadmium	9.80	µg/ft ²	** 31
			Chromium	6.50	µg/ft ²	
			Lead	67.00	µg/ft ²	** 200/40
			Selenium	< 2.50	µg/ft ²	
105-23	2nd Floor at Column B-47	Floor (under raised floor)	Silver	0.67	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	110.00	µg/ft ²	
			Cadmium	7.50	µg/ft ²	** 31
			Chromium	20.00	µg/ft ²	
			Lead	390.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	
105-24	1st Floor at Column E-32	Floor (under raised floor)	Silver	2.20	µg/ft ²	* 139/9.3
			Arsenic	4.20	µg/ft ²	** 62
			Barium	290.00	µg/ft ²	
			Cadmium	36.00	µg/ft ²	** 31
			Chromium	68.00	µg/ft ²	
			Lead	1100.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
105-25	1st Floor at Column F-22	Floor (under raised floor)	Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 1.30	µg/ft ²	** 62
			Barium	81.00	µg/ft ²	
			Cadmium	13.00	µg/ft ²	** 31
			Chromium	42.00	µg/ft ²	
			Lead	230.00	µg/ft ²	** 200/40
			Selenium	< 5.00	µg/ft ²	
105-26	Field Blank		Silver	< 0.50	µg/ft ²	* 139/9.3
			Arsenic	< 0.25	µg/ft ²	** 62
			Barium	0.62	µg/ft ²	
			Cadmium	< 0.05	µg/ft ²	** 31
			Chromium	< 0.50	µg/ft ²	
			Lead	0.48	µg/ft ²	** 200/40
			Selenium	< 0.50	µg/ft ²	

* 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. 100 NW Business Park Ln. Riverside, MO 64150	Attn: Justin Arnold	Lab Order ID: 51824374
Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 1 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-01	Basement Floor J 27	1	Ag	0.50	0.60	0.60
			As*	2.5	< 2.5	< 2.5
			Ba	1.0	64	64
			Cd	0.050	5.0	5.0
			Cr	5.0	29	29
			51824374IPW_1			Pb
			Se*	5.0	< 5.0	< 5.0
105-02	Basement Water Softner E 27	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	< 1.3	< 1.3
			Ba	0.25	15	15
			Cd	0.25	32	32
			Cr	2.5	16	16
			51824374IPW_2			Pb
			Se*	2.5	< 2.5	< 2.5
105-03	Basement Stairs J 27	1	Ag	0.50	< 0.50	< 0.50
			As	2.5	< 2.5	< 2.5
			Ba	0.50	28	28
			Cd	0.050	1.8	1.8
			Cr	5.0	11	11
			51824374IPW_3			Pb
			Se	5.0	< 5.0	< 5.0

*As – elevated RL possibly due to high levels of Pd interference

*Se – elevated RL possibly due to high levels of Al interference

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)

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Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-04	Basement Stairs J 45 Middle Landing	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	< 1.3	< 1.3
			Ba	1.0	61	61
			Cd	0.050	0.57	0.57
			Cr	2.5	18	18
			51824374IPW_4			Pb
			Se*	2.5	< 2.5	< 2.5
105-05	Basement Floor H 41	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	1.9	1.9
			Ba	0.50	33	33
			Cd	0.050	2.3	2.3
			Cr	2.5	7.4	7.4
			51824374IPW_5			Pb
			Se*	2.5	< 2.5	< 2.5
105-06	Basement Floor C 46	1	Ag	0.50	< 0.50	< 0.50
			As*	2.5	< 2.5	< 2.5
			Ba	2.5	140	140
			Cd	0.050	2.2	2.2
			Cr	2.5	20.	20.
			51824374IPW_6			Pb
			Se*	2.5	< 2.5	< 2.5

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		Page: 3 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-07	Basement Floor E 43	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	< 1.3	< 1.3
			Ba	1.0	51	51
			Cd	0.050	0.73	0.73
			Cr	0.50	7.4	7.4
			Pb	13	740	740
51824374IPW_7			Se*	2.5	< 2.5	< 2.5
105-08	FAN Room 41/42 Top of Duct	1	Ag	0.50	2.9	2.9
			As*	1.3	< 1.3	< 1.3
			Ba	5.0	190	190
			Cd	0.50	19	19
			Cr	2.5	31	31
			Pb	2.5	240	240
51824374IPW_8			Se*	2.5	< 2.5	< 2.5
105-09	Chiller Room Floor B 5	1	Ag	0.50	1.4	1.4
			As	0.25	< 0.25	< 0.25
			Ba	0.50	35	35
			Cd	0.050	6.1	6.1
			Cr	0.50	6.0	6.0
			Pb	0.25	20.	20.
51824374IPW_9			Se*	2.5	< 2.5	< 2.5

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Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-10	Chiller Room AHU Top A ½ 3	1	Ag	0.50	0.79	0.79
			As*	1.3	< 1.3	< 1.3
			Ba	1.0	56	56
			Cd	0.050	3.0	3.0
			Cr	2.5	22	22
			51824374IPW_10		Pb	1.3
		Se	0.50	< 0.50	< 0.50	
105-11	Mech Room Floor B 38	1	Ag	0.50	3.9	3.9
			As	0.25	< 0.25	< 0.25
			Ba	1.0	71	71
			Cd	0.050	1.9	1.9
			Cr	0.50	4.9	4.9
			51824374IPW_11		Pb	0.25
		Se	0.50	< 0.50	< 0.50	
105-12	Mech Room AHU Top A 38	1	Ag	0.50	1.5	1.5
			As*	1.3	< 1.3	< 1.3
			Ba	5.0	320	320
			Cd	5.0	100	100
			Cr	2.5	13	13
			51824374IPW_12		Pb	1.3
		Se*	2.5	< 2.5	< 2.5	

*As – elevated RL possibly due to high levels of Pd interference

*Se – elevated RL possibly due to high levels of Al interference

Melissa Ferrell

Analyst

(b) (6)

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. 100 NW Business Park Ln. Riverside, MO 64150	Attn: Justin Arnold	Lab Order ID: 51824374
Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 5 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-13	Penthouse Stairs Middle Landing A 44	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	20.	20.
			Cd	0.050	0.79	0.79
			Cr	0.50	3.7	3.7
51824374IPW_13			Pb	0.25	35	35
			Se	0.50	< 0.50	< 0.50
105-14	Penthouse Stairs Top Landing B 44	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.25	11	11
			Cd	0.050	1.5	1.5
			Cr	0.50	3.0	3.0
51824374IPW_14			Pb	0.25	19	19
			Se	0.50	< 0.50	< 0.50
105-15	Penthouse L AHU Top	1	Ag	0.50	3.7	3.7
			As*	2.5	< 2.5	< 2.5
			Ba	5.0	230	230
			Cd	0.50	35	35
			Cr	5.0	23	23
51824374IPW_15			Pb	2.5	110	110
			Se*	5.0	< 5.0	< 5.0

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

NIOSH 7300/EPA SW-846 3050B



Client: Occu-Tec, Inc. 100 NW Business Park Ln. Riverside, MO 64150	Attn: Justin Arnold	Lab Order ID: 51824374
Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 6 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-16	Penthouse G Floor	1	Ag	0.50	1.0	1.0
			As	0.25	< 0.25	< 0.25
			Ba	2.5	75	75
			Cd	0.050	2.6	2.6
			Cr	0.50	6.7	6.7
			Pb	2.5	140	140
51824374IPW_16			Se	0.50	< 0.50	< 0.50
105-17	Penthouse D Top of Duct	1	Ag	0.50	1.2	1.2
			As*	1.3	8.4	8.4
			Ba	5.0	180	180
			Cd	0.050	7.0	7.0
			Cr	5.0	40.	40.
			Pb	2.5	240	240
51824374IPW_17			Se*	2.5	< 2.5	< 2.5
105-18	Penthouse C Top of AHU	1	Ag	0.50	0.51	0.51
			As*	1.3	3.4	3.4
			Ba	5.0	220	220
			Cd	0.25	18	18
			Cr	5.0	52	52
			Pb	5.0	400	400
51824374IPW_18			Se*	2.5	< 2.5	< 2.5

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

NIOSH 7300/EPA SW-846 3050B



Client: Occu-Tec, Inc. 100 NW Business Park Ln. Riverside, MO 64150	Attn: Justin Arnold	Lab Order ID: 51824374
Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 7 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-19	Penthouse B Entrance Floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	0.29	0.29
			Ba	1.0	41	41
			Cd	0.050	1.7	1.7
			Cr	0.50	5.0	5.0
			51824374IPW_19		Pb	0.25
		Se	0.50	< 0.50	< 0.50	
105-20	Penthouse B Stairs Top Landing	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	1.0	31	31
			Cd	0.050	1.2	1.2
			Cr	0.50	3.5	3.5
			51824374IPW_20		Pb	0.25
		Se	0.50	< 0.50	< 0.50	
105-21	2 nd Floor Under Raised Floor J 10	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	< 1.3	< 1.3
			Ba	2.5	91	91
			Cd	0.050	9.0	9.0
			Cr	0.50	10.	10.
			51824374IPW_21		Pb	13
		Se*	2.5	< 2.5	< 2.5	

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

NIOSH 7300/EPA SW-846 3050B



Client: Occu-Tec, Inc. 100 NW Business Park Ln. Riverside, MO 64150	Attn: Justin Arnold	Lab Order ID: 51824374
Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 8 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-22	2 nd Floor Under Raised Floor F 38	1	Ag	0.50	1.0	1.0
			As*	1.3	< 1.3	< 1.3
			Ba	2.5	71	71
			Cd	0.25	9.8	9.8
			Cr	0.50	6.5	6.5
51824374IPW_22			Pb	1.3	67	67
			Se*	2.5	< 2.5	< 2.5
105-23	2 nd Floor Under Raised Floor B 47	1	Ag	0.50	0.67	0.67
			As*	1.3	< 1.3	< 1.3
			Ba	2.5	110	110
			Cd	0.25	7.5	7.5
			Cr	2.5	20.	20.
51824374IPW_23			Pb	13	390	390
			Se*	5.0	< 5.0	< 5.0
105-24	1 st Floor Under Raised Floor E 32	1	Ag	0.50	2.2	2.2
			As*	2.5	4.2	4.2
			Ba	5.0	290	290
			Cd	0.50	36	36
			Cr	5.0	68	68
51824374IPW_24			Pb	25	1100	1100
			Se*	5.0	< 5.0	< 5.0

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

NIOSH 7300/EPA SW-846 3050B



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Project: 918004.002 Building 105		Date Received: 09/20/2018
		Date Reported: 10/05/2018
		Page: 9 of 9

Sample ID	Description	Area (ft ²)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft ²)
Lab Sample ID	Lab Notes					
105-25	1 st Floor Under Raised Floor F 22	1	Ag	0.50	< 0.50	< 0.50
			As*	1.3	< 1.3	< 1.3
			Ba	2.5	81	81
			Cd	0.25	13	13
			Cr	5.0	42	42
51824374IPW_25			Pb	13	230	230
			Se*	5.0	< 5.0	< 5.0
105-26	BLANK	-	Ag	0.50	< 0.50	-
			As	0.25	< 0.25	-
			Ba	0.050	0.62	-
			Cd	0.050	< 0.050	-
			Cr	0.50	< 0.50	-
51824374IPW_26			Pb	0.25	0.48	-
			Se	0.50	< 0.50	-

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 www.sailab.com lab@sailab.com

Lab Use Only
 Lab Order ID: 51824374
 Client Code: _____

Company Contact Information	
Company: OCCU-TEC Inc.	Contact: Justin Arnold
Address: 100 NW Business Park Lane	Phone <input type="checkbox"/> : 816-810-3276
Riverside, Mo 64150	Fax <input type="checkbox"/> : 816-994-3478
	Email :jarnoid@occutec.com

Billing/Invoice Information	Turn Around Times [^]	
SAME <input checked="" type="checkbox"/>	90 Min. <input type="checkbox"/>	48 Hours <input type="checkbox"/>
Company:	3 Hours <input type="checkbox"/>	72 Hours <input type="checkbox"/>
Contact:	6 Hours <input type="checkbox"/>	96 Hours <input type="checkbox"/>
Address:	12 Hours <input type="checkbox"/>	120 Hours <input type="checkbox"/>
	24 Hours <input type="checkbox"/>	144 ⁺ Hours <input checked="" type="checkbox"/>
	[^] TATs not available for certain test types	
PO Number:		
Project Name/Number: 9180G4.002 110		

Industrial Hygiene Test Types	
Silica as Alpha Quartz (XSZ)* <input type="checkbox"/>	With Respirable Dust (XDZ) <input type="checkbox"/>
Silica as Cristobalite (XSC)* <input type="checkbox"/>	With Respirable Dust (XDC) <input type="checkbox"/>
Silica as Tridymite (XST)* <input type="checkbox"/>	With Respirable Dust (XDT) <input type="checkbox"/>
Silica as Alpha Quartz, Cristobalite, Tridymite (XSA)* <input type="checkbox"/>	With Respirable Dust (XDA) <input type="checkbox"/>
Silica Bulk (XSI)* <input type="checkbox"/>	
Bulk Phase ID/Whole Rock (XUK) <input type="checkbox"/>	
Total Dust NIOSH Method 0500 (GTD) <input type="checkbox"/>	
Respirable Dust NIOSH Method 0600 (GRD) <input type="checkbox"/>	
PCM NIOSH 7406-A Rules (PCM) <input type="checkbox"/>	
B Rules (PCB) <input type="checkbox"/>	TWA (PTA) <input type="checkbox"/>
TEM NIOSH 7402 (Asbestos) (TNI) <input type="checkbox"/>	
Hexavalent Chromium (OSHA ID-215) (Note if from spray paint operations) <input type="checkbox"/>	
Metals (NIOSH 7300) (Specify Metals Under Comments) <input type="checkbox"/>	
Other 6010 C <input checked="" type="checkbox"/>	
* Modified NIOSH 7500/OSHA ID 142	

Sample ID #	Description/Location	Volume/Area	Comments
105-01	Basement Floor J27	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-02	Basement water softener E 27	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-03	Basement stairs J 27	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-04	Basement stairs J 45 Middle landing	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-05	Basement floor H 41	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-06	Basement floor C 46	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-07	Basement floor E 43	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-08	FAN Room 41/42 Top of Duct	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-09	Chiller Room Floor B 5	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-10	Chiller Room AHU Top A 1/2 3	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-11	Mech Room Floor B38	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-12	Mech Room AHU Top A 38	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
105-13	Penthouse Stairs Middle Landing A44	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se

Total # of Samples _____

Relinquished by (b) (6)	Date/Time	Received by (b) (6)	Date/Time
Accepted <input checked="" type="checkbox"/>			9-20 10:30
Rejected <input type="checkbox"/>			Page 1 of 2

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