OCCU-TEC
100 NW Business Park Lane
Riverside, MO 64150
Telephone: 816.231.5580
Fax: 816.231.5641
www.occutec.com

October 29, 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 104
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 104 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 19, 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 nineteen (19) 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	7.00
Arsenic	<0.25	0.60
Barium	14.00	180.00
Cadmium	0.12	3.90
Total Chromium	<0.50	49.00
Lead	5.70	1300.00
Selenium	<0.50	<5.00

* 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 # 104 - Wipe Sample Data						
Sample Number	**Location**	**Area Description**	**Analyte**	**Result**	**Units**	**Recommended Limits**
104-01	Basement at Column J1/2-27	Stairwell Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	57.00	µg/ft^2	
			Cadmium	0.89	µg/ft^2	** 31
			Chromium	6.10	µg/ft^2	
			Lead	36.00	µg/ft^2	** 200/40
			Selenium	< 5.00	µg/ft^2	
104-02	Basement at Column G-27	Basement Floor	Silver	< 25.00	µg/ft^2	* 139/9.3
			Arsenic	< 0.50	µg/ft^2	** 62
			Barium	180.00	µg/ft^2	
			Cadmium	2.10	µg/ft^2	** 31
			Chromium	39.00	µg/ft^2	
			Lead	240.00	µg/ft^2	** 200/40
			Selenium	< 5.00	µg/ft^2	
104-03	Penthouse at A-44	Stair Landing	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	54.00	µg/ft^2	
			Cadmium	0.12	µg/ft^2	** 31
			Chromium	5.40	µg/ft^2	
			Lead	9.10	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-04	Penthouse at B-44	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	21.00	µg/ft^2	
			Cadmium	0.13	µg/ft^2	** 31
			Chromium	2.30	µg/ft^2	
			Lead	8.80	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-05	Penthouse F	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	0.31	µg/ft^2	** 62
			Barium	25.00	µg/ft^2	
			Cadmium	0.18	µg/ft^2	** 31
			Chromium	1.90	µg/ft^2	
			Lead	18.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-06	Penthouse B	Top of AHU unit	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	0.60	µg/ft^2	** 62
			Barium	30.00	µg/ft^2	
			Cadmium	0.85	µg/ft^2	** 31
			Chromium	49.00	µg/ft^2	
			Lead	35.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
104-07	Penthouse B	Stair Landing	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	17.00	µg/ft^2	
			Cadmium	0.23	µg/ft^2	** 31
			Chromium	1.40	µg/ft^2	
			Lead	10.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-08	Basement at G-25	Top of Boiler	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.50	µg/ft^2	** 62
			Barium	130.00	µg/ft^2	
			Cadmium	2.80	µg/ft^2	** 31
			Chromium	40.00	µg/ft^2	
			Lead	1300.00	µg/ft^2	** 200/40
			Selenium	< 1.00	µg/ft^2	
104-09	Basement at F-25	Top of Chiller	Silver	7.00	µg/ft^2	* 139/9.3
			Arsenic	< 0.50	µg/ft^2	** 62
			Barium	160.00	µg/ft^2	
			Cadmium	0.63	µg/ft^2	** 31
			Chromium	10.00	µg/ft^2	
			Lead	63.00	µg/ft^2	** 200/40
			Selenium	< 1.00	µg/ft^2	
104-10	Basement at E-26	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 2.50	µg/ft^2	** 62
			Barium	75.00	µg/ft^2	
			Cadmium	1.90	µg/ft^2	** 31
			Chromium	27.00	µg/ft^2	
			Lead	110.00	µg/ft^2	** 200/40
			Selenium	< 5.00	µg/ft^2	
104-11	1st Floor Mechanical Room at A-20	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	0.31	µg/ft^2	** 62
			Barium	42.00	µg/ft^2	
			Cadmium	0.38	µg/ft^2	** 31
			Chromium	4.00	µg/ft^2	
			Lead	12.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-12	Mechanical Room at A-31	Top of transformer	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	0.25	µg/ft^2	** 62
			Barium	14.00	µg/ft^2	
			Cadmium	0.22	µg/ft^2	** 31
			Chromium	< 0.50	µg/ft^2	
			Lead	5.70	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
104-13	Mechanical Room at A-42	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	94.00	µg/ft^2	
			Cadmium	1.10	µg/ft^2	** 31
			Chromium	13.00	µg/ft^2	
			Lead	22.00	µg/ft^2	** 200/40
			Selenium	< 5.00	µg/ft^2	
104-14	2nd Floor Mechanical Room at A-42	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	140.00	µg/ft^2	
			Cadmium	1.80	µg/ft^2	** 31
			Chromium	3.70	µg/ft^2	
			Lead	25.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-15	2nd Floor Mechanical Room at A-17	Floor	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	36.00	µg/ft^2	
			Cadmium	3.50	µg/ft^2	** 31
			Chromium	2.70	µg/ft^2	
			Lead	26.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-16	2nd Floor at G-45	Under Raised Flooring	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	130.00	µg/ft^2	
			Cadmium	0.18	µg/ft^2	** 31
			Chromium	13.00	µg/ft^2	
			Lead	39.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-17	2nd Floor at C-34	Under Raised Flooring	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	68.00	µg/ft^2	
			Cadmium	0.73	µg/ft^2	** 31
			Chromium	16.00	µg/ft^2	
			Lead	62.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-18	2nd Floor at F-31	Under Raised Flooring	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	140.00	µg/ft^2	
			Cadmium	3.90	µg/ft^2	** 31
			Chromium	5.70	µg/ft^2	
			Lead	49.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	

Sample Number	Location	Area Description	Analyte	Result	Units	Recommended Limits
104-19	2nd Floor at G-16	Under Raised Flooring	Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	47.00	µg/ft^2	
			Cadmium	1.70	µg/ft^2	** 31
			Chromium	18.00	µg/ft^2	
			Lead	200.00	µg/ft^2	** 200/40
			Selenium	< 0.50	µg/ft^2	
104-20	Field Blank		Silver	< 0.50	µg/ft^2	* 139/9.3
			Arsenic	< 0.25	µg/ft^2	** 62
			Barium	0.19	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	< 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.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**1 of 7**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration ($µg/ft^2$)
104-01	Basement stairwell J ½ 27	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	57	57
			Cd	0.050	0.89	0.89
			Cr	0.50	6.1	6.1
51824254IPW_1			Pb	2.5	36	36
			Se*	5.0	< 5.0	< 5.0
104-02	Basement floor G 27	1	Ag*	25	< 25	< 25
			As*	0.50	< 0.50	< 0.50
			Ba	2.5	180	180
			Cd	0.050	2.1	2.1
			Cr	5.0	39	39
51824254IPW_2			Pb	2.5	240	240
			Se*	5.0	< 5.0	< 5.0
104-03	Penthouse stair landing A 44	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	54	54
			Cd	0.050	0.12	0.12
			Cr	0.50	5.4	5.4
51824254IPW_3			Pb	0.25	9.1	9.1
			Se	0.50	< 0.50	< 0.50

***Ag** – elevated RL possibly due to high levels of Er and/or Fe interference ***As** – elevated RL possibly due to high levels of Pd interference

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

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

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**2 of 7**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104-*04*	Penthouse floor B 44	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	21	21
			Cd	0.050	0.13	0.13
			Cr	0.50	2.3	2.3
51824254IPW_4			Pb	0.25	8.8	8.8
			Se	0.50	< 0.50	< 0.50
104-*05*	Penthouse 104 F floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	0.31	0.31
			Ba	0.50	25	25
			Cd	0.050	0.18	0.18
			Cr	0.50	1.9	1.9
51824254IPW_5			Pb	0.25	18	18
			Se	0.50	< 0.50	< 0.50
104-06	Penthouse B AHU-B top	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	0.60	0.60
			Ba	0.50	30.	30.
			Cd	0.050	0.85	0.85
			Cr	5.0	49	49
51824254IPW_6			Pb	0.25	35	35
			Se	0.50	< 0.50	< 0.50

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

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**3 of 7**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104-*07*	Penthouse B stair landing	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.25	17	17
			Cd	0.050	0.23	0.23
			Cr	0.50	1.4	1.4
51824254IPW_7			Pb	0.25	10.	10.
			Se	0.50	< 0.50	< 0.50
104-08	Top of boiler G 25 basement	1	Ag	0.50	< 0.50	< 0.50
			As*	2.5	< 2.5	< 2.5
			Ba	5.0	130	130
			Cd	0.50	2.8	2.8
			Cr	5.0	40.	40.
51824254IPW_8			Pb	25	1300	1300
			Se*	1.0	< 1.0	< 1.0
104-09	Top of chiller F 25 basement	1	Ag	0.50	7.0	7.0
			As*	0.50	< 0.50	< 0.50
			Ba	25	160	160
			Cd	0.050	0.63	0.63
			Cr	0.50	10.	10.
51824254IPW_9			Pb	2.5	63	63
			Se*	1.0	< 1.0	< 1.0

***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)

NIOSH 7300/EPA SW-846 3050B

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**4 of 7**

Sample ID *Lab Sample ID*	Description *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration (µg/ft^2)
104-10	BSMT floor E 26	1	Ag	0.50	< 0.50	< 0.50
			As*	2.5	< 2.5	< 2.5
			Ba	0.50	75	75
			Cd	0.50	1.9	1.9
			Cr	5.0	27	27
51824254IPW_10			Pb	2.5	110	110
			Se*	5.0	< 5.0	< 5.0
104-11	Mech Room 1st floor A 20 floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	0.31	0.31
			Ba	0.50	42	42
			Cd	0.050	0.38	0.38
			Cr	0.50	4.0	4.0
51824254IPW_11			Pb	0.25	12	12
			Se	0.50	< 0.50	< 0.50
104-12	Mech Room A 31 dry transformer	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	0.25	0.25
			Ba	0.50	14	14
			Cd	0.050	0.22	0.22
			Cr	0.50	< 0.50	< 0.50
51824254IPW_12			Pb	0.25	5.7	5.7
			Se	0.50	< 0.50	< 0.50

***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)

NIOSH 7300/EPA SW-846 3050B

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**5 of 7**

Sample ID / *Lab Sample ID*	Description / *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration ($µg/ft^2$)
104-*13*	Mech Room A 42 floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	94	94
			Cd	0.050	1.1	1.1
			Cr	0.50	13	13
51824254IPW_13			Pb	0.25	22	22
			Se*	5.0	< 5.0	< 5.0
104-14	2nd floor Mech Rm A 42 floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	2.5	140	140
			Cd	0.050	1.8	1.8
			Cr	0.50	3.7	3.7
51824254IPW_14			Pb	0.25	25	25
			Se	0.50	< 0.50	< 0.50
104-15	2nd floor Mech Rm A 17 floor	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	36	36
			Cd	0.050	3.5	3.5
			Cr	0.50	2.7	2.7
51824254IPW_15			Pb	0.25	26	26
			Se	0.50	< 0.50	< 0.50

***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)

NIOSH 7300/EPA SW-846 3050B

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**6 of 7**

Sample ID *Lab Sample ID*	Description *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration ($µg/ft^2$)
104-16	2nd floor under raised floor G 45	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	130	130
			Cd	0.050	0.18	0.18
			Cr	0.50	13	13
51824254IPW_*16*			Pb	0.25	39	39
			Se	0.50	< 0.50	< 0.50
104-17	2nd floor under raised floor C 34	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	68	68
			Cd	0.050	0.73	0.73
			Cr	0.50	16	16
51824254IPW_*17*			Pb	1.3	62	62
			Se	0.50	< 0.50	< 0.50
104-18	2nd floor under raised floor F 31	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	2.5	140	140
			Cd	0.050	3.9	3.9
			Cr	0.50	5.7	5.7
51824254IPW_18			Pb	1.3	49	49
			Se	0.50	< 0.50	< 0.50

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

Client:	**Occu-Tec, Inc.**	**Attn:**	**Justin Arnold**	**Lab Order ID:**	**51824254**
	100 NW Business Park Ln.			**Date Received:**	**09/20/2018**
	Riverside, MO 64150			**Date Reported:**	**10/02/2018**
Project:	**918004.002 Building 104**			**Page:**	**7 of 7**

Sample ID *Lab Sample ID*	Description *Lab Notes*	Area (ft^2)	*Element	Reporting Limit (µg)	Concentration (µg)	Concentration ($µg/ft^2$)
104-*19*	2nd floor under raised floor G 16	1	Ag	0.50	< 0.50	< 0.50
			As	0.25	< 0.25	< 0.25
			Ba	0.50	47	47
			Cd	0.050	1.7	1.7
			Cr	0.50	18	18
51824254IPW_19			Pb	2.5	200	200
			Se	0.50	< 0.50	< 0.50
104-*20*	Blank	-	Ag	0.50	< 0.50	-
			As	0.25	< 0.25	-
			Ba	0.050	0.19	-
			Cd	0.050	< 0.050	-
			Cr	0.50	< 0.50	-
51824254IPW_20			Pb	0.25	< 0.25	-
			Se	0.50	< 0.50	-

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.

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: 51824254
Client Code: _____

Company Contact Information

Company: OCCU-TEC Inc.	Contact: Justin Arnold
Address: 100 NW Business Park Lane	Phone ☐: 816-810-3276
Riverside, Mo 64150	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: 918004.002 Building 104

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
104-01	Basement Stairwell J1/2 27	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-02	Basement Floor G 27	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-03	Penthouse Stair Landing A 44	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-04	Penthouse Floor B 44	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-05	Penthouse 104 F Floor	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-06	Penthouse B AHU-B Top	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-07	Penthouse B stair landing	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-08	Top of Boiler G25 Basement	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-09	Top of Ch. Iler F25 Basement	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-10	BSMT Floor E 24	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-11	Mechroom 1st Floor A 20 Floor	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-12	Mech Room A 31 Dry transformer	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-13	Mech Room A 42 Floor	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se

Total # of Samples _____

Relinquished by	Date/Time	Received by	Date/Time
(b) (6) [redacted]		(b) (6) [redacted]	9/20 10:30a

Accepted ☑
Rejected ☐

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: 51824254
Client Code: ______________

Sample ID #	Description/Location	Volume/Area	Comments
104-014	2nd floor Mech Rm A42 Floor	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-015	2nd floor Mech Rm A17 Floor	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-16	2nd floor Under Raised floor G45	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-17	2nd floor Under Raised floor C 34	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-18	2nd floor Under Raised floor F 31	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-19	2nd floor Under Raised floor G14	1 SF	Ag, As, Ba, Cd, Cr, Pb, Se
104-20	BLANK	—	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
			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
			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
			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
			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
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se
			Ag, As, Ba, Cd, Cr, Pb, Se

A-F-018 EXP: 2/4/2021

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