

The following report is from a sampling event where wipe samples of settled dust from various exterior functioning louvers were collected at representative locations throughout the Goodfellow Federal Center. Samples were analyzed for seven target metals: Arsenic, Barium, Cadmium, Chromium (Total), Lead, Selenium, and Silver.

Results indicate that all of the samples contained detectable concentrations of target metals. This confirms that there was a contribution from the outside environment to the indoor contaminant levels; however, GSA provides sufficient circulation and filtration of the indoor air mixed with filtered fresh outdoor air, as well as good housekeeping procedures, to prevent an accumulation of any dust. (For example, the HVAC systems use at least a MERV 8-rated filter. These filters can remove particles as small as 3 microns in size with 95 percent efficiency.)

GSA continues to check for airborne levels of heavy metals by taking air samples inside tenant spaces at least twice a year. If you have any questions concerning this data, please email r6environmental@gsa.gov and GSA will provide responses from the appropriate experts.



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

September 11, 2017

Mr. Joshua L. Trader
Project Manager
Design & Construction Division
U.S. General Services Administration
2300 Main Street, Kansas City, MO 64108

**RE: Goodfellow Federal Center
Metals in Settled Dust Testing for Buildings – 102E, 103, 103E, 103F, 104,
104E, 104F, 105, 105E, 105F, 105L, 107, and 110
4300 Goodfellow Boulevard
St. Louis, Missouri 63120
OCCU-TEC Project No. 917004.002**

Dear Mr. Trader:

Thank you for the opportunity to assist the General Services Administration (GSA) with the metals in settled dust sampling investigation of the above referenced buildings located at the Goodfellow Federal Center (GFC), in St. Louis, Missouri. OCCU-TEC understands that the purpose of the investigation was to provide additional sampling data regarding existing environmental conditions that are present at GFC that could adversely affect general building occupants and maintenance workers at the facility. The following report summarizes the sample collection activities and the laboratory analytical results of samples submitted.

On August 16, 2017, a team of OCCU-TEC personnel including a Missouri licensed lead risk assessor conducted settled dust sampling for the presence of seven target metals (lead, arsenic, barium, cadmium, chromium, selenium, and silver) from various exterior functioning louvers at representative locations throughout GFC. These sampling activities were conducted at the following buildings: 102E, 103, 103E, 103F, 104, 104E, 104F, 105, 105E, 105F, 105L, 107, and 110. The purpose of this testing was to determine the presence and concentration of these target metals in the outdoor environment that may currently be affecting the fresh air supply into the interior portions

of the buildings through the building's heating, ventilation and air conditioning (HVAC) systems.

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 field personnel on-site.

Metals in Settled Dust Sampling

Metals dust sampling was completed from the horizontal louvers utilizing lead dust wipe sampling methodology.

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 diagonal surfaces of the horizontal air intake louvers for each building included in the investigation. An area of approximately one to two square feet was measured and delineated with laboratory supplied templates or masking tape. The dust wipe samples were collected using dedicated dust wipe cloths meeting ASTM standards. Each dust wipe cloth was pre-moistened and individually wrapped. The diagonal surfaces selected for sampling consisted of areas that appeared to have consistent dust distribution and were less likely to be affected by rain, snow or ice accumulation. Each sample was collected by wiping in a back and forth "S" pattern over a measured sampling area of approximately one to two square feet (1 SF). 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 Sanair Technologies Laboratory Inc. (Sanair) in Powhatan, Virginia for ICP-total analysis of metals analysis according to Environmental Protection Agency (EPA) method SW846 350B/7420.

Results of the dust wipe samples collected from the building's air louvers from each building indicate that all the 21 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 sampled. **Samples with a "<" sign indicate that the results were below the reportable limit.**

Analysis	Lowest Concentration (µg/sq. ft.)	Highest Concentration (µg/sq. ft.)
Arsenic	<2.50	5.56
Barium	17.70	1,180.00
Cadmium	<2.50	9.00
Total Chromium	<2.50	51.90
Lead	3.64	182.00
Selenium	<2.50	3.69
Silver	<2.50	<2.50

Many of the samples collected contained target metals above the laboratory detection limit. The main focus of the louver sampling was to determine if the data indicated a possible source or direction of the metals dust stemming from off property. Based on the results of the sampling, there is no pattern evident that would indicate dust accumulation from any specific source off site.

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 – Sample Location Maps
- C - Laboratory Analysis Reports
- D - Licenses



Appendix

A

Sample Summary Table



Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-105-01	Bldg. #105 - Ground level side SE	Approx 6' off the ground, Brown Paint	Silver	<	2.5	µg/ft ²
			Arsenic		5.03	µg/ft ²
			Barium		74	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		34.4	µg/ft ²
			Lead		172	µg/ft ²
			Selenium		3.69	µg/ft ²
LWP-105-02	Bldg. #105 - Penthouse - Section C	West side of penthouse, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		27.8	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		3.46	µg/ft ²
			Lead		14.1	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-105-03	Bldg. #105 - Penthouse - Section A	North side of penthouse, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		97.8	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		10.4	µg/ft ²
			Lead		63.6	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-105L-04	Bldg. #105L - Ground level	Approx 7' off ground, Entrance on west side of building, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		91.9	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		11.1	µg/ft ²
			Lead		49.2	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-103C-05	Bldg. #103C - Ground level - SE side - Sect. C	Approx 6' off ground, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic		4.61	µg/ft ²
			Barium		84.2	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		23.9	µg/ft ²
			Lead		102	µg/ft ²
			Selenium		2.88	µg/ft ²
LWP-103-06	Bldg. #103 - Ground Level - West side	Approx. 5' off ground, By Equipment Entrance and Fire Connections, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		109	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		20.9	µg/ft ²
			Lead		93	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-103-07	Bldg. #103 - East Penthouse - Sect. B	Approx. 4' off ground, North side, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic		2.64	µg/ft ²
			Barium		98.3	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		15.2	µg/ft ²
			Lead		73.4	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-103-08	Bldg. #103 - North Penthouse - Sect. A	North side, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic		2.99	µg/ft ²
			Barium		88.1	µg/ft ²
			Cadmium		9	µg/ft ²
			Chromium		10.5	µg/ft ²
			Lead		76.1	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-104F-09	Bldg. #104F - Ground level - SW side	Approx 10' off ground, Under breezeway, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		92.6	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		10.1	µg/ft ²
			Lead		38.2	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-103E-10	Bldg. #103E - Ground level - West side	Approx. 7' off ground, Under breezeway, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic		3	µg/ft ²
			Barium		1180	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		11.6	µg/ft ²
			Lead		94.7	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-104-11	Bldg. #104 - Roof - Sect. A	North facing intake, Beige paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		85.9	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		7.94	µg/ft ²
			Lead		45.9	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-104-12	Bldg. # 104 - Roof - Sect. C	20' south of penthouse, North side of new unit, Beige paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		30.9	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		4.27	µg/ft ²
			Lead		16.4	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-104-13	Bldg. #104 - Penthouse - Sect. D	North facing wall, Approx 8' off ground, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		65.8	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		7.73	µg/ft ²
			Lead		26.7	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-104E-14	Bldg. #104E - Roof	SE New Air Intake, South side, Beige paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		245	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		6.1	µg/ft ²
			Lead		22.9	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-110-15	Bldg. #110 - Center Penthouse	East side, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		81.2	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		9.26	µg/ft ²
			Lead		25.6	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-110-16	Bldg. #110 - North Penthouse	South side, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		50.9	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		7.11	µg/ft ²
			Lead		17.6	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-105F-17	Bldg. #105F - Roof Doghouse - South	North side of doghouse, Peeling silver paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		27.6	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium	<	2.5	µg/ft ²
			Lead		7.38	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-105E-18	Bldg. #105E - Roof Doghouse - West	North side of doghouse, Peeling silver paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		17.7	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium	<	2.5	µg/ft ²
			Lead		3.64	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-103F-19	Bldg. #103F - Penthouse	Approx. 4' off ground, Southeast side, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		83.2	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		4.83	µg/ft ²
			Lead		20.8	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-107-20	Bldg. #107 - Ground level - West side	Below grade, By Entrance, Brown paint	Silver	<	2.5	µg/ft ²
			Arsenic		5.56	µg/ft ²
			Barium		49.4	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		51.9	µg/ft ²
			Lead		182	µg/ft ²
			Selenium		3.59	µg/ft ²
LWP-102E-21	Bldg. #102E - Ground level - South side	Approx. 4' off ground, SW end, Unpainted	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium		103	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium		15.8	µg/ft ²
			Lead		60.2	µg/ft ²
			Selenium		1.46	µg/ft ²

Goodfellow Federal Center - Exterior Air Louver Wipe Sample Data						
Sample Number	Location	Area Description	Analyte		Result	Units
LWP-BLK-22	Field Blank	Not Applicable	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium	<	2.5	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium	<	2.5	µg/ft ²
			Lead	<	2.5	µg/ft ²
			Selenium	<	2.5	µg/ft ²
LWP-BLK-23	Field Blank	Not Applicable	Silver	<	2.5	µg/ft ²
			Arsenic	<	2.5	µg/ft ²
			Barium	<	2.5	µg/ft ²
			Cadmium	<	2.5	µg/ft ²
			Chromium	<	2.5	µg/ft ²
			Lead	<	2.5	µg/ft ²
			Selenium	<	2.5	µg/ft ²

Appendix

B

Sample Location Maps

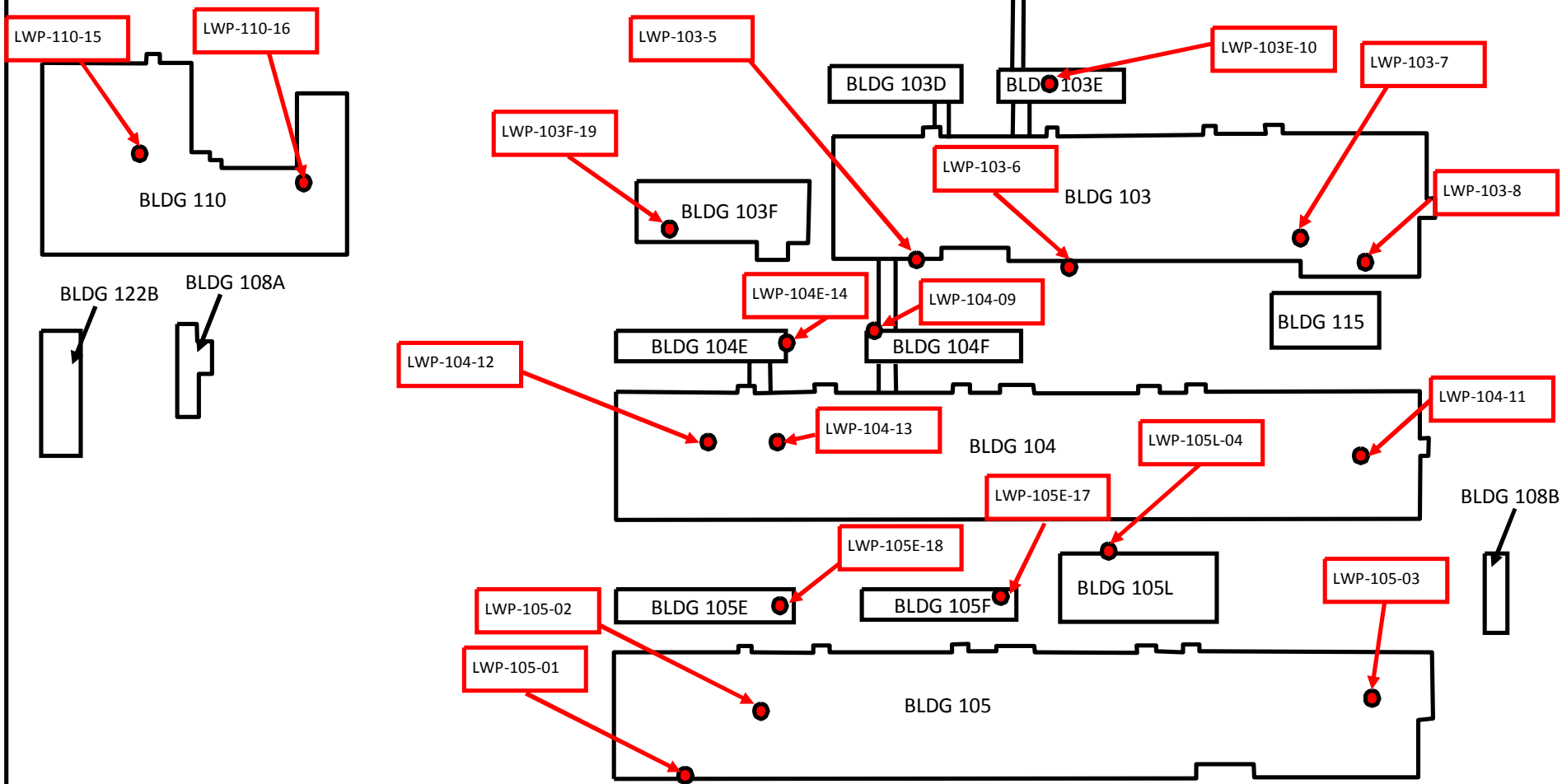


LOUVER HEAVY METALS SAMPLING LOCATION MAP

Goodfellow Federal Complex

4300 Goodfellow Boulevard, St. Louis, MO

Project Number: 917004



Appendix

C

Laboratory
Analytical
Reports



SanAir Technologies Laboratory

Analysis Report

prepared for

Occu-Tec

Report Date: 8/25/2017
Project Name: GFC - Wipe Samp
Project #: 917004
SanAir ID#: 17032302



NVLAP LAB CODE 200870-0



Certification # 652931



License # LAB0166



804.897.1177

www.sanair.com



SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: <http://www.sanair.com> E-mail: iaq@sanair.com

Occu-Tec
100 NW Business Park Lane
Riverside, MO 64150

August 25, 2017

SanAir ID # 17032302
Project Name: GFC - Wipe Samp
Project Number: 917004

Dear Jay Hurst,

We at SanAir would like to thank you for the work you recently submitted. The 23 sample(s) were received on Friday, August 18, 2017 via FedEx. The final report(s) is enclosed for the following sample(s): LWP-102E-21, LWP-103-06, LWP-103-07, LWP-103-08, LWP-103C-05, LWP-103E-10, LWP-103F-19, LWP-104-11, LWP-104-12, LWP-104-13, LWP-104E-14, LWP-104F-09, LWP-105-01, LWP-105-02, LWP-105-03, LWP-105E-18, LWP-105F-17, LWP-105L-04, LWP-107-20, LWP-110-15, LWP-110-16, LWP-BLK-22, LWP-BLK-23.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

(b) (6)

Doug Peery
Industrial Hygiene Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:
23 sample(s) in Good condition



1551 Oakbridge Dr STE B
 Powhatan, VA 23139
 804.897.1177 / 888.895.1177
 Fax 804.897.0070
 sanair.com

**Metals & Lead
 Chain of Custody**
 Form 70, Revision 9, 01/19/2017

SanAir ID Number
 17032302

Company: OCCU-TEC, Inc	Project #: 917004	Phone #: 816-994-3416
Address: 100 NW Business Park Ln	Project Name: GFC-Wipe Samp	Phone #: 816-825-0628
City, St., Zip: Riverside MO 64150	Date Collected:	Fax #: 816-994-3466
Samples Collected By: J. Hurst	P.O. Number:	Email: jhurst@occutec.com
Account #:	U.S. State Collected in: MO	Email:

Matrix Types

Metals Analysis Types

<input type="checkbox"/> Air (ug/m ³)	Total Concentration of Lead <input type="checkbox"/>	<input checked="" type="checkbox"/> ICP-total concentration of metals (please list metals): Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver
<input checked="" type="checkbox"/> Wipe (ug/ft ²)	Total Concentration of RCRA 8 Metals <input type="checkbox"/>	
<input type="checkbox"/> Paint <input type="checkbox"/> Soil <input type="checkbox"/> Bulk (ug/g or ppm)	TCLP for Lead <input type="checkbox"/>	
<input type="checkbox"/> Other:	TCLP for RCRA 8 Metals <input type="checkbox"/>	

Turn Around Time	Same Day <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 days <input type="checkbox"/>	3 Days <input type="checkbox"/>
	<input checked="" type="checkbox"/> Standard (5 day)	<input type="checkbox"/> Full TCLP (10d)		

Sample #	Collection Date & Time	Sample Identification/Location	Flow Rate	Start Time	Stop Time	Volume (L) Area (Sq ft)
LWP-102E-21	8-16-17	South end of Building on SW side Ground Level				1.25sqft
LWP-103-06	8-15-17	West side by Equip. Entrance & Fire Connections; Ground Level				1
LWP-103-07	8-16-17	East Penthouse; B-Sect.; West North Facing				1.5
LWP-103-08	8-16-17	Northern Most Penthouse; North Side A Sect.				1.5
LWP-103C-05	8-15-17	SE side of sect.-C; Ground Level Air Intake				1.5
LWP-103E-10	8-15-17	West side under Breeze Way; Ladder Height				1.15
LWP-103F-19	8-16-17	SE side of Penthouse on top of Building				1.5
LWP-104-11	8-16-17	A Block, North Facing Intake; Northern Most Penthouse				1
LWP-104-12	8-16-17	C-Sect. North Facing Intake; 20' S. of Penthouse				1.5
LWP-104-13	8-16-17	N. Penthouse; N. Facing wall; Sect. D				1.5
LWP-104E-14	8-16-17	South Side of SE Air Intake				1.17
LWP-104F-09	8-15-17	SW Air Intake under Breeze Way Ground Level				2
LWP-105-01	8-15-17	SE Side; Ground Level, Air Intake				1.5
LWP-105-02	8-16-17	West side of Penthouse on Roof; C-Penthouse				1.5

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
(b) (6)	Aug. 17, 2017	12:18	(b) (6)	AUG 18 2017	9:45AM

If no technician is provided, then the primary contact of your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm will begin at 8 am the next business morning. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the Rush TAT rate. There is a minimum charge of \$100 for weekend work. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

811132687679



1551 Oakbridge Dr STE B
 Powhatan, VA 23139
 804.897.1177 / 888.895.1177
 Fax 804.897.0070
 sanair.com

**Metals & Lead
 Chain of Custody**
 Form 70, Revision 9, 01/19/2017

SanAir ID Number
 17032302

Company: <u>Occu-Tec, Inc.</u>	Project #: <u>917004</u>	Phone #: <u>816-994-3416</u>
Address: <u>100 NW Business Park</u>	Project Name: <u>GFC-Wipe Samp</u>	Phone #: <u>816-994-3466</u>
City, St., Zip: <u>Riverside, MO 64150</u>	Date Collected:	Cell Fax #: <u>816-725-0628</u>
Samples Collected By: <u>J. Hurst</u>	P.O. Number:	Email: <u>Wheeler@occutec</u>
Account #:	U.S. State Collected in: <u>MO</u>	Email:

Matrix Types

Metals Analysis Types

<input type="checkbox"/> Air (ug/m ³)	Total Concentration of Lead <input type="checkbox"/>	<input checked="" type="checkbox"/> ICP-total concentration of metals (please list metals): <u>Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver</u>		
<input checked="" type="checkbox"/> Wipe (ug/ft ²)	Total Concentration of RCRA 8 Metals <input type="checkbox"/>			
<input type="checkbox"/> Paint <input type="checkbox"/> Soil <input type="checkbox"/> Bulk (ug/g or ppm)	TCLP for Lead <input type="checkbox"/>			
<input type="checkbox"/> Other:	TCLP for RCRA 8 Metals <input type="checkbox"/>			
Turn Around Time	Same Day <input type="checkbox"/>	1 Day <input type="checkbox"/>	2 days <input type="checkbox"/>	3 Days <input type="checkbox"/>
	<input checked="" type="checkbox"/> Standard (5 day)	<input type="checkbox"/> Full TCLP (10d)		

Sample #	Collection Date & Time	Sample Identification/Location	Flow Rate	Start Time	Stop Time	Volume (L) Area (Sq ft)
LWP-105-03	8-16-17	North Side of Northern Most Penthouse				1.25 sq ft
LWP-105E-18	8-16-17	North side of Doghouse; west of Penthouse				1.13
LWP-105F-17	8-16-17	North side of Doghouse on South Side of Building				1.13
LWP-105L-04	8-15-17	West Side Air Intake, Ladder height by Entrance				1.7
LWP-107-20	8-16-17	Below Ground Level; West side of Building; South of West Entrance				1.5
LWP-110-15	8-16-17	Central Penthouse; East tower				1.6
LWP-110-16	8-16-17	North Penthouse; South tower				1.6
LWP-BLK-22	8-16-17	Blank				1
LWP-BLK-23	8-16-17	Blank				1

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
(b) (6)	Aug 17, 2017	12:18	(b) (6)	AUG 18 2017	9:45 AM

If no technician is provided, then the primary contact of your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm will begin at 8 am the next business morning. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the Rush TAT rate. There is a minimum charge of \$100 for weekend work. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.



SanAir Technologies Laboratory, Inc

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email:iaq@sanair.com

SanAir ID Number
 17032302
 Final Report

Name: Occu-Tec
Address: 100 NW Business Park lane
 Riverside, MO 64150

Project Number: 917004
P.O. Number:
Project Name: GFC-Wipe Samp

Collected Date: 8/15/2017 - 8/16/2017
Received Date: 8/18/2017 9:45 AM
Report Date: 8/25/2017 4:00 PM
Analyst : Peery, Doug

Analytes Requested: RCRA 8 Metals
Test Method: EPA M3050B/6010C/7470A

REPORT OF ANALYSIS

Lab Sample #	Field Sample #	Analyte	Sample Description	Results in ug/ft ²	MRL ug/ft ²
17032302-01	LWP-102E-21	Silver (Ag)	South End Of Building On SW Side Ground Level	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		103	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		15.8	2.5
		Lead (Pb)		60.2	2.5
		Selenium (Se)		1.46	2.5
17032302-02	LWP-103-06	Silver (Ag)	West Side Of Equip. Entrance & Fire Connections, Ground	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		109	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		20.9	2.5
		Lead (Pb)		93.0	2.5
		Selenium (Se)		<2.5	2.5
17032302-03	LWP-103-07	Silver (Ag)	East Penthouse, B-Sect. North Facing	<2.5	2.5
		Arsenic (As)		2.64	2.5
		Barium (Ba)		98.3	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		15.2	2.5
		Lead (Pb)		73.4	2.5
		Selenium (Se)		<2.5	2.5

MRL: Method Reporting Limit based on 0.1 µg/ft2

Certification

SanAir Technologies Laboratory, Inc participates in the certification for environmental Lead as administered by AIHA-ELLAP (Lab Id 162952) and the State of New York-ELAP (Lab Id 11983, and has met the EPA's NLLAP program standards.

Signature: (b) (6)
 Date: 8/24/2017

Reviewed: (b) (6)
 Date: 8/25/2017

Analytes Requested: RCRA 7 Metals
 Test Method: EPA M3050B/6010C

REPORT OF ANALYSIS

Lab Sample #	Field Sample #	Analyte	Sample Description	Results in ug/ft ²	MRL ug/ft ²
17032302-04	LWP-103-08	Silver (Ag)	Northern Most Penthouse, North Side A Sect	<2.5	2.5
		Arsenic (As)		2.99	2.5
		Barium (Ba)		88.1	2.5
		Cadmium (Cd)		9.00	2.5
		Chromium (Cr)		10.5	2.5
		Lead (Pb)		76.1	2.5
		Selenium (Se)		<2.5	2.5
17032302-05	LWP-103C-05	Silver (Ag)	SE Side Of Sect. -C, Ground Level Air Intake	<2.5	2.5
		Arsenic (As)		4.61	2.5
		Barium (Ba)		84.2	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		23.9	2.5
		Lead (Pb)		102	2.5
		Selenium (Se)		2.88	2.5
17032302-06	LWP-103E-10	Silver (Ag)	West Side Under Breezeway, Ladder Height	<2.5	2.5
		Arsenic (As)		3.00	2.5
		Barium (Ba)		1,180	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		11.6	2.5
		Lead (Pb)		94.7	2.5
		Selenium (Se)		<2.5	2.5
17032302-07	LWP-103F-19	Silver (Ag)	SE Side Of Penthouse Of Top Of Building	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		83.2	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		4.83	2.5
		Lead (Pb)		20.8	2.5
		Selenium (Se)		<2.5	2.5
17032302-08	LWP-104-11	Silver (Ag)	A Block, North Facing Intake, Northern Most Penthouse	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		85.9	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		7.94	2.5
		Lead (Pb)		45.9	2.5
		Selenium (Se)		<2.5	2.5

MRL: Method Reporting Limit based on 0.1 µg/ft²

Certification

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Signature: (b) (6)
 Date: 8/24/2017

Reviewed: (b) (6)
 Date: 8/25/2017

REPORT OF ANALYSIS

Lab Sample #	Field Sample #	Analyte	Sample Description	Results in ug/ft ²	MRL ug/ft ²
17032302-09	LWP-104-12	Silver (Ag)	C-Sect. North Facing Intake, 20' S. Of Penthouse	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		30.9	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		4.27	2.5
		Lead (Pb)		16.4	2.5
		Selenium (Se)		<2.5	2.5
17032302-10	LWP-104-13	Silver (Ag)	N. Penthouse, N. Facing Wall, Sect. D	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		65.8	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		7.73	2.5
		Lead (Pb)		26.7	2.5
		Selenium (Se)		<2.5	2.5
17032302-11	LWP-104E-14	Silver (Ag)	South Side Of SE Air Intake	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		245	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		6.10	2.5
		Lead (Pb)		22.9	2.5
		Selenium (Se)		<2.5	2.5
17032302-12	LWP-104F-09	Silver (Ag)	SW Air Intake Under Breezeway Ground Level	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		92.6	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		10.1	2.5
		Lead (Pb)		38.2	2.5
		Selenium (Se)		<2.5	2.5
17032302-13	LWP-105-01	Silver (Ag)	SE Side, Ground Level, Air Intake	<2.5	2.5
		Arsenic (As)		5.03	2.5
		Barium (Ba)		74.0	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		34.4	2.5
		Lead (Pb)		172	2.5
		Selenium (Se)		3.69	2.5

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Signature: (b) (6)
 Date: 8/24/2017

Reviewed: (b) (6)
 Date: 8/25/2017

Analytes Requested: RCRA 8 Metals
Test Method: EPA M3050B/6010C/7470A

REPORT OF ANALYSIS

Lab Sample #	Field Sample #	Analyte	Sample Description	Results in ug/ft ²	MRL ug/ft ²
17032302-14	LWP-105-02	Silver (Ag)	West Side Of Penthouse On Roof, C-Penthouse	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		27.8	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		3.46	2.5
		Lead (Pb)		14.1	2.5
		Selenium (Se)		<2.5	2.5
17032302-15	LWP-105-03	Silver (Ag)	North Side Of Northern Most Penthouse	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		97.8	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		10.4	2.5
		Lead (Pb)		63.6	2.5
		Selenium (Se)		<2.5	2.5
17032302-16	LWP-105E-18	Silver (Ag)	North Side Of Doghouse, West Of Penthouse	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		17.7	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		<2.5	2.5
		Lead (Pb)		3.64	2.5
		Selenium (Se)		<2.5	2.5
17032302-17	LWP-105F-17	Silver (Ag)	North Side Of Doghouse On South Side Of Building	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		27.6	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		<2.5	2.5
		Lead (Pb)		7.38	2.5
		Selenium (Se)		<2.5	2.5
17032302-18	LWP-105L-04	Silver (Ag)	West Side Air Intake, Ladder Height By Entrance	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		91.9	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		11.1	2.5
		Lead (Pb)		49.2	2.5
		Selenium (Se)		<2.5	2.5

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Signature: (b) (6)
 Date: 8/24/2017

Reviewed: (b) (6)
 Date: 8/25/2017

Analytes Requested: RCRA 8 Metals
 Test Method: EPA M3050B/6010C/7470A

REPORT OF ANALYSIS

Lab Sample #	Field Sample #	Analyte	Sample Description	Results in ug/ft ²	MRL ug/ft ²
17032302-19	LWP-107-20	Silver (Ag)	Below Ground Level, West Side Of Building, South Of West	<2.5	2.5
		Arsenic (As)		5.56	2.5
		Barium (Ba)		49.4	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		51.9	2.5
		Lead (Pb)		182	2.5
		Selenium (Se)		3.59	2.5
17032302-20	LWP-110-15	Silver (Ag)	Central Penthouse, East Louver	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		81.2	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		9.26	2.5
		Lead (Pb)		25.6	2.5
		Selenium (Se)		<2.5	2.5
17032302-21	LWP-110-16	Silver (Ag)	North Penthouse, South Louver	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		50.9	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		7.11	2.5
		Lead (Pb)		17.6	2.5
		Selenium (Se)		<2.5	2.5
17032302-22	LWP-BLK-22	Silver (Ag)	Blank	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		<2.5	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		<2.5	2.5
		Lead (Pb)		<2.5	2.5
		Selenium (Se)		<2.5	2.5
17032302-23	LWP-BLK-23	Silver (Ag)	Blank	<2.5	2.5
		Arsenic (As)		<2.5	2.5
		Barium (Ba)		<2.5	2.5
		Cadmium (Cd)		<2.5	2.5
		Chromium (Cr)		<2.5	2.5
		Lead (Pb)		<2.5	2.5
		Selenium (Se)		<2.5	2.5

MRL: Method Reporting Limit based on 0.1 ug/ft²

Certification

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Signature: (b) (6)

Date: 8/24/2017

Reviewed: (b) (6)

Date: 8/25/2017

Disclaimer

- Results relate only to the items tested
- Results are not corrected for blanks
- All quality control results are acceptable unless otherwise noted
- SanAir Technologies Laboratory, Inc is not responsible for sample collection or interpretation made by others
- This report does not constitute endorsement by AIHA/NVLAP and/or any other U.S. governmental Agencies; and may not be certified by every local, state or federal regulatory
- SanAir Technologies Laboratory, Inc only assures the precision and accuracy of the data it generates and assumes no responsibility for errors or biasing that occur during collection prior
- SanAir's Method Detection Limits (MDL) and Reporting Limits (RL) have been derived using wipe materials meeting ASTM-E1792. The MDL and RL may not be relevant or applicable for

Lead Exposure Limits

Air

1.5 µg/m³ EPA National Ambient Air Quality Standard (Quality Time – Weight Average)

30 µg/m³ OSHA Action Level (8-hour time weighted average)

50 µg/m³ OSHA Permissible Exposure Limit (General Industry)

50 µg/m³ OSHA Permissible Exposure Limit (Construction)

Dust

10 µg/ft² HUD Clearance Level for Floors

100 µg/ft² HUD Clearance Level for Interior Window Sills

100 µg/ft² HUD Clearance Level for Window Troughs

40 µg/ft² HUD Clearance Level for Porch Floors

Water

15 ppb (µg/liter) EPA Maximum Containment Level

Paint

0.5% by weight HUD definition of lead based paint

1.0 mg/cm²

5000 ppm

Soil

400 ppm HUD-Play areas and high-contact areas for children

TCLP EPA Limits:

Silver (Ag): 5.0 mg/L

Arsenic (As): 5.0 mg/L

Barium (Ba): 100 mg/L

Cadmium (Cd): 1.0 mg/L

Chromium (Cr): 5.0 mg/L

Mercury (Hg): 0.2 mg/L

Lead (Pb): 5.0 mg/L

Selenium (Se): 1.0 mg/L

Appendix

D

Qualifications and
Licenses



STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Jay W. Hurst

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: **12/8/2016**
Expiration Date: **12/8/2018**
License Number: **101208-300003181**



(b) (6)

Peter Lyskowski
Director
Department of Health and Senior Services

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