



October 29, 2020

Diane Czarnecki  
Industrial Hygienist  
Facilities Management Division  
GSA Public Buildings Service – Heartland Region  
2300 Main Street  
Kansas City, MO 64108

Re: Goodfellow Federal Center  
Metals in Settled Dust Sampling – Resampling from September 2020 Event  
Project No. 121244

Dear Ms. Czarnecki:

Thank you for the opportunity to assist the General Services Administration (GSA) with the metals in settled dust sampling investigation at the Goodfellow Federal Center (GFC) in St. Louis, Missouri. Burns & McDonnell 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.

## **INTRODUCTION**

Per historical use and previous characterization, Burns & McDonnell was contracted to perform settled dust sampling for the analysis of one (1) of the Resource Conservation and Recovery Act (RCRA) target metals (lead) from a surface in the complex that exceeded the lead clean area limit during the June and September 2020 sampling events. The purpose of this testing was to assess the effectiveness of cleaning and 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 Burns & McDonnell. Specific sample locations were determined during the June and September 2020 sampling events. Settled dust wipe sampling was conducted on October 21, 2020 by Nicholas Turnbeaugh of Burns & McDonnell.

## **METALS IN SETTLED DUST SAMPLING**

Metals in settled dust sampling was conducted in building 104, column B45 at the threshold between the elevator and floor number 2. Dust wipe sampling was conducted in accordance with ASTM Standard E1728: *Standard Practice for Collection of Settled Dust Samples Using Wipe Sampling Methods for Subsequent Lead Determination*. ASTM Standard E1728 is consistent with the methodology described in the Housing and Urban Development Guidelines and 40 CFR 745.63. The Brookhaven National Laboratory's Surface Wipe Sampling Procedure (IH75190) was also used as a guideline.



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Dust wipe sampling for the target metal was conducted on a representative surface that has the potential of being disturbed by building occupants. A representative surface area of approximately one square foot (1 SF) was measured and delineated with plastic templates. The dust wipe sample was collected using dedicated dust wipe cloths meeting ASTM E1792 Standard. 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 using a clean, disposable glove. Then, the wipe was folded over itself and the area was wiped again in a direction perpendicular to the first wipe orientation. Then, the wipe folded over itself again and the area was wiped around the perimeter. The wipe sample was then placed into a labeled, clean container. The dust wipe sample, as well as a field blank sample were submitted to EMSL Analytical in St. Louis, Missouri for Flame Atomic Absorption (Flame AA) analysis of lead using Environmental Protection Agency (EPA) method SW846-7000B. EMSL is accredited under the American Industrial Hygiene Association (AIHA) Laboratory Accreditation Program (LAP) identification number AIHA-LAP, LLC ELLAP 102636.

Whereas the Occupational Safety and Health Administration (OSHA) has not established regulatory limits for surface concentrations of metals, the OSHA Technical Manual Section II: Chapter 2 (III.A) describes a method for calculating “housekeeping” standards, as recommended acceptable surface limits. Brookhaven’s IH75190 procedure uses the housekeeping standards to derive a lower, “clean area limit” for non-operational areas that can be accessed or contacted without special training or precautions. Wipe results were compared to the Brookhaven procedure’s clean area limits for each metal.

Results of the dust wipe samples collected indicate that the sample collected contained concentrations of lead above laboratory reporting limits. The following table identifies the result of the lead sample that was analyzed. Samples with a “<” sign indicate that the results were below the lab’s reportable limit.



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**Table 1. Summary of Dust Wipe Results**

Analyte	Concentration <sup>(a)</sup> ( $\mu\text{g}/\text{sq. ft}$ ) <sup>(b)</sup>	Clean Area Limit <sup>(c)</sup> $\mu\text{g}/\text{sq. ft}$ <sup>(b)</sup>
Lead	57	10 <sup>(d)</sup>

- (a) Samples with a “<” sign indicate that the results were below the reportable limit.
- (b)  $\mu\text{g}/\text{sq. ft}$  = micrograms per square foot of surface area.
- (c) Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL ( $\mu\text{g}/\text{m}^3$ ) x  $10 \text{ m}^3/100\text{cm}^2$ ] / 15.
- (d) Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10  $\mu\text{g}/\text{sq. ft}$ . as of January 2020.

This sample exceeded the lead clean area limit.

Burns & McDonnell appreciates the opportunity to work with the GSA on this project. Please contact us if you have any questions regarding this report or if we may be of any additional service.

Sincerely,

(b) (6)

Matt Shanahan, CHMM  
Project Manager

Attachments:  
Appendix A - Sample Summary Table  
Appendix B – Laboratory Analysis Report

**APPENDIX A – SAMPLE SUMMARY TABLE**

## Appendix A

### Sample Summary Table

Goodfellow Federal Center - Building # 104 - Wipe Sample Data						
Sample Number	Location	Area Description	Analyte	Result	Units	Clean Area Limit*
104-W-01	Elevator B45	Floor between elevator and hallway	Lead	57	µg/ft <sup>2</sup>	10
104-W-Blank	Field Blank	--	Lead	< 10	µg	--

\* Clean Area Limit per Brookhaven IH75190=OSHA Housekeeping Limit [PEL (µg/m<sup>3</sup>) x 10 m<sup>3</sup>/100cm<sup>2</sup>] / 15. Lead clean area limit: Brookhaven references EPA/HUD limit for floors, set at 10 µg/sq. ft. as of January 2020.

Indicates results at or above the Clean Area Limit

**APPENDIX B – LABORATORY ANALYSIS REPORT**



# EMSL Analytical, Inc.

100 Green Park Industrial Court, Saint Louis, MO 63123  
Phone/Fax: (314) 577-0150 / (314) 776-3313  
<http://www.EMSL.com> [saintlouislaboratory@emsl.com](mailto:saintlouislaboratory@emsl.com)

EMSL Order: 392009820  
CustomerID: BURN50  
CustomerPO:  
ProjectID:

Attn: **Matthew Shanahan**  
**Burns & McDonnell**  
**9400 Ward Parkway**  
**Kansas City, MO 64114**

Phone: (816) 333-9400  
Fax: (816) 822-3028  
Received: 10/21/2020 11:45 AM  
Collected:

Project: 121244 / GFC

## Test Report: Lead in Dust by Flame AAS (SW 846 3050B/7000B)\*

<i>Client SampleDescription</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Area Sampled</i>	<i>RDL</i>	<i>Lead Concentration</i>
104-W-1 392009820-0001		10/22/2020	144 in <sup>2</sup>	10 µg/ft <sup>2</sup>	57 µg/ft <sup>2</sup>
104-W-Blank 392009820-0002		10/22/2020	144 in <sup>2</sup>	10 µg/ft <sup>2</sup>	<10 µg/ft <sup>2</sup>

(b) (6)

Jeff Siria, Laboratory Manager  
or other approved signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. Analysis following Lead in Dust by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 10 ug/wipe. Ug/wipe = ug/ft2 x area sampled in ft2. Unless noted, results in this report are not blank corrected. The lab is not responsible for data reported in ug/ft2 which is dependent upon the area provided by non-lab personnel. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. Definitions of modifications are available upon request.  
Samples analyzed by EMSL Analytical, Inc. Saint Louis, MO AIHA-LAP, LLC--ELLAP Accredited #102636

Initial report from 10/22/2020 12:02:50



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

### Lead (Pb) Chain of Custody

EMSL Order ID (Lab Use Only):

392009820

PHONE: ( )  
FAX: ( )

Company: Burns & McDonnell		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small>		
Street: 9400 Ward Pkwy		<i>Third Party Billing requires written authorization from third party</i>		
City: Kansas City	State/Province: MO	Zip/Postal Code: 64111	Country: USA	
Report To (Name): Matt Shanahan		Telephone #: 816-333-9400		
Email Address: mshanahan@burnsmcd.com		Fax #:	Purchase Order:	
Project Name/Number: 121244 / GFC		Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email		
U.S. State Samples Taken:		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt		
<b>Turnaround Time (TAT) Options* - Please Check</b>				
<input type="checkbox"/> 3 Hour	<input type="checkbox"/> 6 Hour	<input checked="" type="checkbox"/> 24 Hour	<input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week	
<small>*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide</small>				
Matrix	Method	Instrument	Reporting Limit	Check
Chips <input type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm <sup>2</sup> <input type="checkbox"/> ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%	<input type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter	<input type="checkbox"/>
Wipe* <input checked="" type="checkbox"/> ASTM non ASTM <input type="checkbox"/> <small>*If no box checked, non-ASTM Wipe assumed</small>	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	<input checked="" type="checkbox"/>
	SW846-6010B or C	ICP-OES	10 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	<input type="checkbox"/>
Wastewater Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	<input type="checkbox"/>
Drinking Water Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	<input type="checkbox"/>
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	<input type="checkbox"/>
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	<input type="checkbox"/>
Other: <input type="checkbox"/>				
Name of Sampler: Nicholas Turnbeaugh		Signature of Sampler: (b) (6)		
Sample #	Location	Volume/Area	Date/Time Sampled	
104-W-1	B45 elevator	1 sq. ft	8:02 AM	
104-W-Blank	Field blank	1 sq. ft	8:17 AM	
Client Sample #s:		Total # of Samples: 2		
Relinquished (Client): (b) (6)	Date: 10/21/20	Time: 11:45 w/i		
Received (Lab):	Date: 10-21-20	Time:		
Comments:				