Appendix A

Surface Lead Sampling Reports

Indoor Firing Ranges

This appendix contains the surface lead sampling reports for the former IFRs. There is a separate report for each armory. Results for the armory areas outside of the former IFRs are reported separately in Appendix B.

The <u>Facility Description</u> section includes the current area use and frequency of use as provided by OHARNG Facility Maintenance.

The surface lead guideline for the former range areas is 200 μ g/ft².

The <u>Results</u> section summarizes the sampling data and notes the locations where the guideline was exceeded. The table in the Results section includes lead contamination levels for contents stored in the old range area, furnishings (e.g., shelving), and the range structural components (e.g., baffles, backstops, exhaust fans). The following lead contamination categories were used:

Contamination Description	Lead Level (µg/ft ²)
Low (Clean)	≤ 200
Moderate	> 200 to ≤ 1,000
High	>1,000 to ≤ 10,000
Very High	> 10,000 to ≤ 100,000
Gross	> 100,000

The <u>Recommendations</u> section provides cleaning guidance for contents and structure. The number and letter format gives the recommended actions for contents (Action 1) and structure (Action 2) as listed in Table 2 of the main report.

Example: For Alliance Armory, the recommendation for retrieval of <u>contents</u> is 1-b and the recommendations for cleaning and renovation of the <u>structure</u> is 2-b. Go to Table 2 in the main report for a description of 1-b and 2-b actions.

Notes for Individual Reports:

1) μ g/ft² = micrograms per square foot of surface area.

2) "<" means less than the reporting limit for the analytical method.

3) Guideline: 200 µg/ft². NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, 3 November 2006.

Appendix B

Surface Lead Sampling Reports

Armory Areas Outside of the Former IFRs

This appendix contains the surface lead sampling reports for the armory areas outside of the former IFRs. There is a separate report for each armory. The IFR results are reported separately in Appendix A.

The <u>Facility Description</u> section states if the armory drill hall is available for public use. This information was collected during the September 2014 surveys. If an armory drill floor is available for use by the public, a lower surface lead guideline (40 μ g/ft²) is used since children may be present in the area. If the armory is not available to the public, the guideline is 200 μ g/ft².

The <u>Results</u> section summarizes the sampling data and notes the locations where the guidelines were exceeded. The <u>Recommendations</u> section provides cleaning guidance.

Notes for Individual Reports:

1) μ g/ft² = micrograms per square foot of surface area.

2) "<" means less than the reporting limit for the analytical method.

3) Guidelines: 200 μ g/ft² for former range and facility; 40 μ g/ft² for potentially child occupied areas of facility (e.g., drill hall and family readiness areas for armories that allow public access). NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, 3 November 2006.

BEST AVAILABLE COPY Alliance Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Alliance Armory	1175 Vine St., Alliance, OH 44601
Date:	IH:	POCs:
1/13/15	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. Five surface wipe sample results were above the NG Pam 420-15 guideline of 200 μ g/ft². There are high lead levels at multiple elevated surfaces within this armory and high to very high lead levels on horizontal surfaces in the boiler room. There was also some measureable lead contamination in the kitchen area.

Recommendations:

- For the old firing range, use of a qualified and licensed range remediation contractor experienced in lead dust abatement was recommended to clean and complete the conversion of the area IAW NG Pam 420-15. Recommend including the cleaning of the elevated areas above the drill floor and horizontal surfaces in the boiler room in the firing range statement of work.
- 2. Increase housekeeping efforts in the kitchen area and continue housekeeping in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHAL- W21	Light fixture above drill floor		<u>5,109</u>	OHAL- W23	Top of HVAC above drill floor		<u>7,227</u>
OHAL- W22	Steel trusses above drill floor	DHAL- 22- PANE-	<u>3,441</u>	OHAL- W30	Top of boiler – boiler room		<u>12,791</u>

Table 1. Alliance Armory Surface Wipe Sampling Results for Lead (January 2015).

Page 1 of 3

BEST AVAILABLE COPY Alliance Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHAL- W31	Top of electrical panel- boiler room		<u>3,364</u>	OHAL- W34	Storage area – table top		<91
OHAL- W32	Kitchen – top of ice machine		<91	OHAL- W35	Storage room – brown table		<91
OHAL- W33	Kitchen – green supply shelf		<91				

Table 2. Alliance Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHAL5	Kitchen in pantry on shelf (12 x 12)	Surplus and the second se	43	OHAL7	Drill hall on floor by supply room (12 x12)		<10
OHAL6	Drill hall on floor by war room (12 x 12)		14				

Page 2 of 3



Figure 1. Alliance Armory Floor Plan with Sampling Locations (January 2015).

BEST AVAILABLE COPY Alliance IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR - Alliance	1175 Vine St., Alliance, OH 44601
Date:	IH:	POC:
1/13/15	Non-Responsive	Non-Responsive
Facility Descr	iption: Range converted to an exercis	e room, supply cages, and garage.

Frequency of Use: Daily for FTUS; monthly for civilian and M-day.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings
Clean <200 μg/ft ²	2	5
Moderate <1K μg/ft ²		7 (floor, wall, mat, shelf, flammable cabinet)
High >1K μg/ft²		2 (floor, light)
Very High >10K μg/ft ²		5 (angle iron, ceiling duct interior, light)
Gross > 100K µg/ft ²		1 (ceiling grille exterior)
Total Number of Results >200 μg/ft ²	0/2	15/20
Summary	 Contents: 2 samples clean (o Structures/Furnishings: 75% of gross lead contamination leve Gross contaminated found on ventilation system. Exhaust grilles, ductwork, ang contaminated. 	nly 2 samples). of results showed moderate to ls. grille exterior; very high inside le iron, light fixtures

Recommendations:

1-b

2-b

The weight room mat/floor/wall base shows moderate to high contamination levels and should be cleaned before use. Additional sampling is required to further characterize this space.

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHAL- W9	Under floor mat in weight room		<u>700</u>	OHAL- W16	Top of angle iron at ceiling		<u>13,755</u>
OHAL- W10	Wall in weight room by scale		<91	OHAL- W17	Top of light fixture at ceiling		<u>1,497</u>
OHAL- W11	Base of wall at back stop on cinderblock (brown)	P	<u>457</u>	OHAL- W18	HVAC vent cover in ceiling	CHAL - IP	<u>100,773</u>
OHAL- W12	Rubber floor mat	E	<u>655</u>	OHAL- W19	Light fixture in ceiling		<u>50,386</u>
OHAL- W13	Horizon treadmill		<91	OHAL- W20	Angle iron in ceiling		<u>35,455</u>
OHAL- W14	Inside HVAC duct at ceiling		<u>21,591</u>	OHAL- W24	Vinyl tarp (gray) in cage #1		<91
OHAL- W15	Support angle iron at ceiling		<u>10,382</u>	OHAL- W25	Metal shelf in cage #1		94

Table 1. Alliance IFR Surface Wipe Sampling Results for Lead (January 2015).

Page 2 of 4

BEST AVAILABLE COPY Alliance IFR - Surface Lead Sampling Report

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft²)
OHAL- W26	Shelving in cage #2		<91	OHAL- W28	Top of chemical storage cabinet	FLAMMABLE RIP FIRE AWAY	<u>646</u>
OHAL- W27	Shelving in cage #2		95	OHAL- W29	Metal shelf at front of gun range		<u>258</u>

Table 2. Alliance IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft²)
OHAL1	Old range now weight room next to cage on floor		<u>700</u>	OHAL3	Old range on flammable storage cabinet	IN THE OWNER	<u>755</u>
OHAL2	Old range backstop area now weight room on floor		<u>4,259</u>	OHAL4	Old range garage side on floor by range switches		148

Page **3** of **4**





Page 4 of 4

Surface Metal Monitoring Survey Report

at

Ohio Army National Guard Joint Force Headquarters, Beightler Armory 2825 West Dublin-Granville Road Columbus, Ohio

Survey Date: November 30, 2012



for

Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > December 27, 2012

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FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 10 of 235

Table of Contents

- I. Executive Summary
- II. Introduction
- III. Site Description
- IV. Scope of Work
- V. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List
- B. Laboratory Result Reports and Chain of Custody Sheets
- C. Occupational Health Risk Assessment Codes (RACs)
- D. Floor Plans

I. <u>Executive Summary</u>

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Beightler Armory located in Columbus, Ohio. This survey was performed in order to identify toxic metal levels on surfaces within the facility.

The Beightler Armory serves as the Joint Forces Headquarters for the Ohio Army National Guard. The facility includes a drill floor, maintenance bay, classrooms, kitchen, print shop, latrines, fitness room, supply rooms and vaults, and administrative space. The Beightler Armory had a firing range that was closed in 1992. Weapons are cleaned on the drill floor. Community activities are regularly held in the facility according to site personnel.

Twelve surface wipe samples were collected on representative surfaces throughout the facility and analyzed for toxic metals. The five sample results collected in areas where children have access were all well below the child occupied limit (40 micrograms per square foot, μ g/ft²) and also below the reporting of the analytical method. Of the remaining samples collected from work spaces where children are not expected to be present, two samples contained levels of lead and cadmium above the NGB Industrial Hygiene surface limits for these metals. These samples were collected in the maintenance bay and in the recycle room, respectively. The sample collected in the recycle room was adjacent to an opening from the old firing range bullet trap which may be the source for lead based on the sample results. The result for the sample collected in the old firing range showed a lead level of 187 μ g/ft² which is just below the 200 μ g/ft² criterion level for lead in other work areas. The remaining work area sample results were less than the reporting limit of the analytical method.

Beightler Armory should evaluate the types of items stored in the old firing range and ensure items used with children (e.g., basketball goals) are cleaned and stored elsewhere since the lead results for this space were well above the child occupied limit of 40 μ g/ft². Also, food related items stored in the old firing range should be disposed or cleaned and stored in another location since there is measureable lead in this space (RAC 2).

Beightler Armory should institute a routine housekeeping program to clean the horizontal surfaces in the maintenance bay and storage areas such as the old firing range and the recycle area by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum (RAC 2). Although the sample from the old bullet trap area measured below the limit for work areas (<200 μ g/ft²), consider having the storage area retested for surface lead due to the initial result of 187 μ g/ft². It may prove necessary to consult a licensed contractor to further remediate this area and provide additional abatement guidance (RAC 2).

Some preliminary observations and follow-up recommendations are provided for two indoor air quality concerns including air emissions from transferring vehicles in and out of the drill floor and noticeable odors from a laminator unit in the Defense Enrollment Eligibility Reporting System (DEERS) office.

Due to the size and configuration of the elevated flooring in the Joint Operations Center, a confined space determination and evaluation in accordance with OSHA 29 CFR 1910.146 should be conducted and documented (RAC 2).

II. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Beightler Armory located in Columbus, Ohio. This survey was performed in order to identify toxic metal levels on surfaces within the facility. Non-Responsive, Certified Industrial Hygienist (CIH), conducted this survey on November 30, 2012.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Beightler Armory serves as the Joint Forces Headquarters for the Ohio Army National Guard. The facility was built in phases with the central portion constructed in 1964, the East Wing added in 1970, and the West Wing completed in 1972. Recent renovations included the installation of new boilers in 1998 and the addition of new roof, cooling systems, and kitchen hoods within the past two years.

The two-story facility includes a drill floor (Figure 1), maintenance bay, classrooms, kitchen, print shop, latrines, fitness room, supply rooms and vaults, and administrative space. The Beightler Armory had a firing range that was closed in 1992. The range area was renovated and the space is currently used as a fitness room (old firing line) and storage room (target/bullet trap area, Figure 2). Weapons are cleaned on the drill floor. Community activities are regularly held in the facility according to site personnel and include holiday parties, monthly Civil Air Patrol meetings, and family support activities where children are routinely present.





Figure 1 – Drill Floor.





Figure 2 – Storage Room C116/Old Firing Range.

IV. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of toxic metal contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees.

V. Findings, Discussion, and Recommendations

Appendix A includes a list of the points of contact (POCs) for this survey. Analytical laboratory results and chain of custody forms comprise Appendix B, and the risk assessment criteria are included in Appendix C. Appendix D includes floor plans and toxic metal wipe sampling locations for this facility.

Surface Wipe Sampling

Assessment Criteria

At present, there are no Occupational Safety and Health Administration (OSHA) regulated levels for toxic metals on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (µg/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. Any surface lead level that exceeds 200 µg/ft² in any other area of the facility is considered significant. NG Pam 420-15 may be found at: http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf. The lead assessment criteria are based on the Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) 40 CFR 745 and the Housing and Urban Development (HUD) 24 CFR 35 definitions for dust-lead hazards for interior window sills and floors.

For cadmium and chromium, NGB Industrial Hygiene has adopted surface limits of 28 μ g/ft² for cadmium and 6,970 μ g/ft² for total chromium based on the recommendations of the Brookhaven National Laboratory, *Surface Wipe Sampling Procedure*, IH75190 Rev 18, 5/10/11. In cases of metal contamination for food handling and serving areas or equipment, any measureable levels of toxic metals are considered significant.

DoD has instituted a new policy (DTM 12-003, *Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, April 18, 2012) to minimize surface contamination levels of toxic metals. Potential adverse effects of long-term exposure to cadmium include kidney dysfunction, lung cancer, and prostate cancer. Lead can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. The main exposure routes are through inhalation of dust and fumes and the incidental ingestion of dust from contaminated hands, food, or cigarettes.

Wipe Sampling Method

Surface samples were collected using Environmental Express Ghost[™] Wipes. Surface wipe templates that encompassed either 1 square foot (child occupied areas) or 0.11 square foot (other work areas) of surface area were used to collect samples. For each surface sample collected, a new set of gloves and a new numbered template was used. The entire template area was wiped using and "S" configured motion. The wipe was then folded in half and the template area was wiped using an "S" motion in a direction perpendicular to the first. The wipe was folded again and the perimeter of the area was wiped. The wipe was placed into a plastic centrifuge tube, capped, and the samples were sent to the FOH Laboratory in Chicago, Illinois. Samples were hot plate digested and analyzed for lead with a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Sampling Strategy and Results

This sampling effort targeted the old firing range (fitness and storage rooms), weapons cleaning areas, print shops (past and current), the dining room, and locations where children (or items intended for children) may be present. Sampling locations were selected with the Building Maintenance Supervisor (Thom Thorpe) who identified specific areas where these activities are conducted. The sampling strategy included collection of wipes from areas with undisturbed settled dust to identify source areas and areas of high traffic to assess migration patterns and exposure potential.

Twelve surface wipe samples were collected on representative surfaces throughout the facility and analyzed for toxic metals. The results are contained in Table 1 and photos of the sample locations are included in Figure 3. Samples W30 through W34 were collected in potentially child occupied areas of the facility. These samples were collected using a 1-square foot template and were assessed at the 40 μ g/ft² criterion level. All of these sample results were less than the reporting limit of the analytical method.

Samples W35 through W42 were collected using a 0.11-square foot (100 square centimeter) template and were assessed at the 200 μ g/ft² criterion level for other work areas. Two of the samples (W35 and W42) contained levels of lead above the NGB Industrial Hygiene surface limit of 200 μ g/ft². These samples were collected in the maintenance bay and in the recycle room, respectively, and both samples produced result that were also above the criteria for cadmium (28 μ g/ft²). The sample collected in the recycle room (W42) was adjacent to an opening from the old firing range bullet trap area that may be the source for lead. The lead result for the old firing range (W41) was 187 μ g/ft² which is just below the 200 μ g/ft² criterion level. All other work area sample results were less than the reporting limit of the analytical method. There were uncovered food serving items (bowls), packaged water bottles, and equipment used by children (basketball goals) stored in the old firing range (Figure 2).

Table 1 Surface Wipe Sampling Results for Toxic Metals Ohio Army National Guard Beightler Armory Columbus, Ohio November 30, 2012

Sample #	Location	Surface Area (ft ²)	Lead (µg/ft ²)	Cadmium (µg/ft ²)	Chromium (µg/ft ²)
	NGB Industrial Hygiene Surface Lim	nit	40 (child occupied)	28	6,970
W30	Classroom 2 (E209) on table next to coffee pots	1.0	<10	<1.0	<10
W31	Orderly room (C113) on top of refrigerator (gift wrap area)	1.0	<10	<1.0	<10
W32	Drill floor outside C110 on floor next to AHU-10	1.0	<10	<1.0	<10
W33	Lobby on table under TV monitor	1.0	<10	<1.0	<10
W34	Defense Enrollment Eligibility Reporting System (DEERS) office (E100) on coffee table lower shelf	1.0	<10	<1.0	<10
			200 (other		
	NGB Industrial Hygiene Surface Lim	nit	work areas)	28	6,970
W35	Maintenance bay on work table with grinder and coffee pot	0.11	<mark>1,800</mark>	<mark>183</mark>	264
W36	Dining room (E130) on top of snack machine	0.11	<91	<9.1	<91
W37	Purchasing/contracting office (W217) on top of refrigerator (old photo lab)	0.11	<91	<9.1	<91
W38	Duplication/print shop (W137) on window sill near stereo	0.11	<91	<9.1	<91
W39	Basement (W109) on file cabinet (Lt Joshua's desk) near original photo lab	0.11	<91	<9.1	<91
W40	Fitness room (C114) on TV shelf near cardio equipment (old firing range, firing line side)	0.11	<91	<9.1	<91
W41	Storage room (C116) on storage boxes in old bullet trap area	0.11	187	<9.1	<91
W42	Recycle area outside C118 on floor near covered opening from old firing range bullet trap	0.11	<mark>582</mark>	<mark>31</mark>	<91
W43	Blank	N/A	ND	ND	ND

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected; N/A = not applicable. 3) **Bold** indicates the concentration was "significant." 4) "<" means less than the reporting limit for the analytical method.

Recommendations:

- 1. In the old firing range/storage room (C116), evaluate the types of items stored. Ensure items used with children (e.g., basketball goals) and are cleaned and stored elsewhere since the lead result for this space was above 40 μ g/ft² (RAC 2).
- 2. Dispose of the Styrofoam bowls and any other food serving items stored in the old firing range/storage room (C116); wipe down the packaged water bottles and relocate to a clean storage space (RAC 2).
- Although the sample from the old firing range/storage room (C116) bullet trap area measured below the limit for work areas (<200 μg/ft²), consider having the storage area retested for surface lead due to the initial result of 187 μg/ft². It may prove necessary to consult a licensed contractor to remediate this area and provide additional abatement guidance (RAC 2).
- 4. Institute a routine housekeeping program to clean the horizontal surfaces in the maintenance bay and storage areas such as the old firing range and the recycle area by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum (RAC 2).
- 5. When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a HEPA filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 3).
- 6. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).



Sample W30



Sample W32



Sample W34



Sample W36



Sample W31



Sample W33



Sample W35



Sample W37

Figure 3 - Surface Wipe Sample Locations (below).

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Sample W38



Sample W40



Storage Room C116 – box shows location of metal plate covering hole from the old firing range bullet trap side adjacent to recycle room.



Sample W39



Sample W41



Recycle Room - arrow shows sample location; circle shows other side of metal plate covering hole from the firing range bullet trap area.

Sample 42

Indoor Air Quality Observations

The following indoor air quality observations were made during this surface metal monitoring survey. Follow-up actions and preliminary recommendations are suggested to improve indoor air quality within Beightler Armory based on an initial walk-thru of the facility. A comprehensive indoor air quality survey was not performed at this time.

Vehicles are transferred in and out of the drill floor on a routine basis (Figure 1). Carbon monoxide (CO) and oxides of nitrogen (NO_x) could potentially build up and cause indoor air quality concerns for administrative personnel assigned to offices near the drill floor. Minimize running vehicle engines indoors, increase the percent of outdoor air to the building when transferring vehicles, open the roll up doors and consider the wind direction to avoid distributing exhaust to nearby spaces. Consider installing industrial CO/NO_x detection and alarm systems to warn employees of the presence of elevated levels of contaminants. Industrial hygiene personnel may want to collect CO/NO_x data and possibly diesel exhaust samples when vehicles operate indoors to document the levels of contaminants.

A noticeable odor from the laminator was observed in the DEERS office (SSG Andrews workstation, Figure 4). The laminator is a small desk top model. SSG Andrews was not available to be interviewed at the time of this survey. Other personnel assigned to this office stated the laminator remains on during the entire work shift. Two supply air vents were observed in this office, but no return air vent was located. The following recommendations are based on the initial walk-thru of this space. Verify adequate ventilation is provided to this space in accordance with ASHRAE 62.1-2010, *Ventilation for Acceptable Indoor Air Quality*, including adequate outdoor air (5 cfm/person and 0.06 cfm/square foot). Review the laminator manufacturer's data (and the MSDS for the materials if available) to determine if this process potentially produces any toxic air emissions. Determine if the laminator must remain on during the entire shift. Depending on the answers to these questions, it may be necessary to replace the laminator unit/materials, provide local exhaust ventilation, or increase the general ventilation/outdoor air supply to this office.

Confined Space Entry

The basement Joint Operations Center (JOC, Figure 5) was toured and the raised floor that provides an access area for utilities and communications cable was observed. The under floor space is approximately three feet in depth and reportedly runs the full length of the JOC. This area is reportedly entered by personnel as needed to run, reroute, and maintain communications cable. There appears to be no (or limited) ventilation provided to the under floor area and lighting is not provided. Due to the size and configuration of this area, a confined space determination and evaluation in accordance with OSHA 29 CFR 1910.146 should be conducted and documented (RAC 2).

Surface Metal Monitoring Survey Survey Date: November 30, 2012



Figure 4 – Workstation with Laminator.



Figure 5. JOC Entry (no interior photos were permitted due to security concerns).

Technical Assistance: This report was written by Non-Responsive as a representative of FOH, USPHS. Non-Responsive, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at **Non-Responsive**.

Reviewed by:

Non-Responsive



Appendix A

Point of Contact (POC) List

Ohio Army National Guard State POC

, Occupational Health Nurse and State Radiation Safety Officer

Armory POCs Non-Responsive, Building Maintenance Supervisor

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Non-Responsive

Appendix B

Laboratory Result Report and Chain of Custody Sheet

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	ANALYTICAL REPORT
Submitted To:	USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225
Attention: Submitted By:	Non-Responsive
Reference Data: Sampling Site: Sample Media: Method Reference Project ID: DFOH Lab Nos.: Date Received: Data Analyzed: Date Issued:	Lead, Cadmium and Chromium NGB: Columbus, OH (Beightler Armory) Ghost Wipe(s)® De: OSHA ID-121 Project 10824 TM-13-58638 through TM-13-58651 12/07/12 12/11/12 – 12/14/12 12/19/12
The wipe samples v absorption spectrop General Lab Comm All quality control or * All samples receiv	were hot plate digested. The samples were run on a Perkin Elmer 200 flame aton hotometer (AA). ents: iteria have been met. ed in condition acceptable for analysis unless otherwise noted.
** Sample results h blank unless otherw Analytical results ar questions about the	ave not been corrected for contamination based on the field blank or other analytic rise noted. re given on the enclosed tables. Results relate only to items tested. If you have a se results, feel free to phone the Laboratory at (312) 886-0413.
	AIHA LAP, LLC Project 108 ACCEDITE MACHANICAL SHE MACHINE ON CASHING MACHINE ON CASHING M



FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60606 PHONE: (312) 888-0413 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	SAMPLE LABORATORY NUMBER* NUMBER		CONCENTRATION (µg/ft ²)		
W30	TM-13-58638	<10	<10		
W31	TM-13-58639	<10	<10		
W32	TM-13-58640	<10	<10		
W33	TM-13-58641	<10	<10		
W34	TM-13-58642	<10	<10		
W35	TM-13-58643	198	1800		
W36	TM-13-58644	<10	<91		
W37	TM-13-58645	<10	<91		
W38	TM-13-58646	<10	<91		
W39	TM-13-58647	<10	<91		
W40	TM-13-58648	<10	<91		
W41	TM-13-58649	21	187		
W42	TM-13-58650	64	582		
W43**	TM-13-58651	<10	None Detected		

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (ug)	CONCENTRATION (ug/ft ²)
W30	TM-13-58638	<1.0	<1.0
W31	TM-13-58639	<1.0	<1.0
W32	TM-13-58640	<1.0	<1.0
W33	TM-13-58641	<1.0	<1.0
W34	TM-13-58642	<1.0	<1.0
W35	TM-13-58643	20	183
W36	TM-13-58644	<1.0	<9.1
W37	TM-13-58645	<1.0	<9.1
W38	TM-13-58646	<1.0	<9.1
W39	TM-13-58647	<1.0	<9.1
W40	TM-13-58648	<1.0	<9.1
W41	TM-13-58649	<1.0	<9.1
W42	TM-13-58650	3.5	31
W43**	TM-13-58651	<1.0	None Detected



Project 10824 Page 2 of 3



FOH ENVIRONMENTAL LABORATORY

538 8. CLARK STREET CHICAGO, IL 60606 PHONE: (312) 886-0418 FAX: (312) 886-0434

CHROMIUM on WIPE RESULTS

SAMPLE	LABORATORY	CONCENTRATION	CONCENTRATION	
NUMBER*	NUMBER	(µg)	(µQ/ft ²)	
W30	TM-13-58638	<10	<10	
W31	TM-13-58639	<10	<10	
W32	TM-13-58640	<10	<10	
W33	TM-13-58641	<10	<10	
W34	TM-13-58642	<10	<10	
W35	TM-13-58643	29	264	
W36	TM-13-58644	<10	<91	
W37	TM-13-58645	<10	<91	
W38	TM-13-58646	<10	<91	
W39	TM-13-58647	<10	<91	
W40	TM-13-58648	<10	<91	
W41	TM-13-58649	<10	<91	
W42	TM-13-58650	<10	<91	
W43**	TM-13-58651	<10	None Detected	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level	Basis for Criteria
	µg/ft	
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium	6,970	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Silis

Metals in Wipe Limits (based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µp/1 ²	10 µg/12 ²
Cadmium	OSHA ID-121	0.5 µp/1 ²	1.0 µg/t ²
Chromium	OSHA ID-121	5.0 µg/n ²	10 µg/t ²



Surface Metal Monitoring Survey Survey Date: November 30, 2012

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W34										V				58642		
W 35										0,11				58643		
W 36				1										58644		
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W40			-	1			-							58648		
W41				1										58649		
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Appendix C

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. Risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

		Exposure Conditions						
Alternate of Expo	Route sure	<ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>	Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD			
AER	NO	0	3	5	7			
Possible	YES	1-2	4	6	8			

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	0
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7.0
such as asbestosis or lung cancer	7-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure					
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous			
Irregular/ Intermittent	1-2	4-6	NA			
Regular/Periodic	2-3	5-7	8			

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	В	С	D
I	1	1	2	3
I	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Appendix D

Floor Plans



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FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 29 of 235





Surface Metal Monitoring Survey Report

at

Ohio Army National Guard Brook Park Armory 6225 Engle Road Brook Park, Ohio

Survey Date: September 25, 2012



for

Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > October 19, 2012

Table of Contents

- I. Executive Summary
- II. Introduction
- III. Site Description
- IV. Scope of Work
- V. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List
- B. Laboratory Result Reports and Chain of Custody Sheets
- C Occupational Health Risk Assessment Codes (RACs)

I. <u>Executive Summary</u>

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Armory located in Brook Park, Ohio. This survey was conducted in order to identify toxic metal levels on surfaces within the facility.

The Brook Park Armory was built in 1957 and is the base of operations for the 112th Engineering Battalion. The facility encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room, and a weapons vault. During the week, most of the activities at the armory are administrative. The Brook Park Armory had a firing range in the basement area that was converted to storage space over twenty years ago. Weapons are cleaned on the east side of the drill floor. No community activities are held in the facility on a regular basis according to site personnel.

Five surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. Three results were above the surface limit adopted by NGB Industrial Hygiene for lead and cadmium. All other sample results were less than the reporting limit of the analytical method.

The basement storage room and contents located in the old firing range bullet trap area should be thoroughly cleaned. Consult a licensed contractor to remediate this area and provide additional abatement guidance. Some of the difficult-to-clean decorations and any items used with children should be discarded (RAC 2). Institute a routine housekeeping program to clean the horizontal surfaces in work and storage areas, particularly in the basement (RAC 2).

II. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Armory located in Brook Park, Ohio. This survey was performed in order to identify toxic metal levels on surfaces within the facility. Non-Responsive, Certified Industrial Hygienist (CIH), conducted this survey on September 25, 2012.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Brook Park Armory was built in 1957 and is the base of operations for the 112th Engineering Battalion. The facility encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room, and a weapons vault. During the week, most of the activities at the armory are administrative. The Brook Park Armory had a firing range in the basement area that was converted to storage space over twenty years ago. The old bullet trap area is currently used as a storage room (Figure 1). Weapons are cleaned on the east side of the drill floor. No community activities are held in the facility on a regular basis according to site personnel.



Figure 1 – Old Firing Range - Bullet Trap Area/Storage Room.

IV. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of toxic metal contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees.

V. Findings, Discussion, and Recommendations

Surface Wipe Sampling

Assessment Criteria

At present, there are no Occupational Safety and Health Administration (OSHA) regulated levels for these toxic metals on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 200 micrograms per square foot (µg/ft²) in the facility is considered significant. NG Pam 420-15 may be found at: http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf. The lead assessment criteria are

based on the Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) 40 CFR 745 and the Housing and Urban Development (HUD) 24 CFR 35 definitions for dust-lead hazards for interior window sills and floors.

For cadmium and chromium, NGB Industrial Hygiene has adopted surface limits of 28 µg/ft² for cadmium and 6,970 µg/ft² for total chromium based on the recommendations of the Brookhaven National Laboratory, *Surface Wipe Sampling Procedure*, IH75190 Rev 18, 5/10/11. In addition, DoD has instituted a new policy (DTM 12-003, *Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, April 18, 2012) to minimize surface contamination levels of toxic metals.

Wipe Sampling Method

Surface samples were collected using Environmental Express Ghost[™] Wipes. Surface wipe templates that encompassed 0.11 square foot (100 square centimeters) of surface area were used to collect samples. For each surface sample collected, a new set of gloves and a new numbered template was used. The entire template area was wiped using and "S" configured motion. The wipe was then folded in half and the template area was wiped using an "S" motion in a direction perpendicular to the first. The wipe was folded again and the perimeter of the area was wiped. The wipe was placed into a plastic centrifuge tube, capped, and the samples were sent to the FOH Laboratory in Chicago, Illinois. Samples were hot plate digested and analyzed with a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Results

Five surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. The results are contained in Table 1 and photos of the sample locations are included in Figure 2. Two of the results were above the NGB Industrial Hygiene surface limit of 200 μ g/ft² for lead and one result was above the surface limit of 28 μ g/ft² for cadmium. These samples were collected in the old bullet trap area of the former firing range which is currently used as a storage room. Lead can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. Potential adverse effects of long-term exposure to cadmium include kidney dysfunction, lung cancer, and prostate cancer. All other sample results were less than the reporting limit of the analytical method. The bullet trap area and contents should be thoroughly cleaned and a routine housekeeping program should be implemented.
Table 1 Surface Wipe Sampling Results for Metals Ohio Army National Guard Brook Park Armory Brook Park, Ohio September 25, 2012

Sample #	Location	Lead (µg/ft ²)	Cadmium (µg/ft ²)	Chromium (µg/ft ²)
NGB	Industrial Hygiene Surface Limit	200	28	6,970
W1-BPA	Basement storage room, old firing range bullet trap area on table	<mark>1809</mark>	<9.1	<91
W2-BPA	Basement storage cages for 112 th Engineering Battalion on floor	<mark>527</mark>	<mark>44</mark>	<91
W3-BPA	Kitchen window sill	<91	<9.1	<91
W4-BPA	Drill floor on top of flammable cabinet near O/H door; weapons cleaning space	<91	<9.1	<91
W5-BPA	Outside vault on armor's desk	<91	<9.1	<91
W6-BPA	Blank	<91	<9.1	<91

Notes: 1) μg / ft² = micrograms per square foot of surface area. 2) **Bold** indicates the concentration was "significant." 3) "<" means less than the reporting limit for the analytical method.

Recommendations:

- 1. The basement storage room and contents located in the old firing range bullet trap area should be thoroughly cleaned. Consult a licensed contractor to remediate this area and provide additional abatement guidance. Some of the difficult-to-clean decorations and any items used with children should be discarded (RAC 2).
- 2. Institute a routine housekeeping program to clean the horizontal surfaces in work and storage areas, particularly in the basement (RAC 2).
- 3. When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 3).
- 4. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).

Sample W1-BPA



Sample W3-BPA



Sample W2-BPA



Sample W4-BPA



Sample W5-BPA

Figure 2 - Surface Wipe Sample Locations (below).

Technical Assistance: This report was written by **Non-Responsive** as a representative of FOH, USPHS. **Non-Responsive**, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Mathematical Survey** at

Non-Responsive

Reviewed by:

Non-Responsive

Non-Responsive

Appendix A

Point of Contact (POC) List

Ohio Army National Guard State POC

, Occupational Health Nurse and State Radiation Safety Officer

Armory POCs Non-Responsive

Non-Responsive

Appendix B





FOH ENVIRONMENTAL LABORATORY

538 8. CLARK STREET CHICAGO, IL 60606 PHONE: (312) 888-0413 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
W1-BPA	TM-13-57675	199	1809
W2-BPA	TM-13-57676	58	527
W3-BPA	TM-13-57677	<10	<91
W4-BPA	TM-13-57678	<10	<91
W5-BPA	TM-13-57679	<10	<91
W6-BPA	TM-13-57680	<10	<91

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
W1-BPA	TM-13-57675	<1.0	<9.1
W2-BPA	TM-13-57676	4.9	44
W3-BPA	TM-13-57677	<1.0	<9.1
W4-BPA	TM-13-57678	<1.0	<9.1
W5-BPA	TM-13-57679	<1.0	<9.1
W6-BPA	TM-13-57680	<1.0	<9.1

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
W1-BPA	TM-13-57675	<10	<91
W2-BPA	TM-13-57676	<10	<91
W3-BPA	TM-13-57677	<10	<91
W4-BPA	TM-13-57678	<10	<91
W5-BPA	TM-13-57679	<10	<91
W6-BPA	TM-13-57680	<10	<91

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75130 Rev 18 5/10/11
Chromium	6,970	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills



Project 10720 Page 2 of 3



Surface Metal Monitoring Survey Survey Date: September 25, 2012

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Appendix C

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

		Exposure Conditions						
Alternate of Expo	Route sure	<ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>	Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD			
AER	NO	0	3	5	7			
Possible	YES	1-2	4	6	8			

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	0
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7 0
such as asbestosis or lung cancer	1-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure					
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous			
Irregular/ Intermittent	1-2	4-6	NA			
Regular/Periodic	2-3	5-7	8			

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

		M	PC	
ппос	A	В	С	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Surface Lead Monitoring Survey Report

for

Ohio Army National Guard Defense Supply Center Columbus Armory 3990 East Broad Street Columbus, Ohio

Survey Date: March 12, 2013



Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > March 28, 2013

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I. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface lead monitoring at the Ohio Army National Guard Defense Supply Center Columbus (DSCC) Armory located in Columbus, Ohio. <u>Non-Responsive</u>, Certified Industrial Hygienist (CIH), conducted this survey on March 12, 2013 in order to characterize lead levels on surfaces within the facility.

II. <u>Site Description</u>

The DSCC Armory is collocated with the Combined Support Maintenance Shop and U. S. Fiscal Property Offices (USPFO). The armory is occupied by the 285th and the 684th Area Support Medical Companies. The construction data of this facility was not known, but is assumed to be pre-1978. This facility has never contained an indoor firing range and weapons are cleaned on the drill floor and in classrooms. Children are present in the facility on a routine basis for special celebrations. The facility contact for this survey was Nor-Responsive.

III. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of lead contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees.

IV. Findings, Discussion, and Recommendations

Wipe samples were collected on targeted surfaces with visible dust accumulations in the facility using the Occupational Safety and Health Administration (OSHA) wipe sampling method. The samples were analyzed for lead by OSHA Method ID-121. The results and sampling photos are contained in Table 1. Appendix A includes the analytical laboratory report and chain of custody forms and Appendix B includes the risk assessment code (RAC) methodology.

At present, there are no OSHA regulated levels for lead on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (μ g/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. In the potentially child occupied areas tested in this facility, none of the surface wipe sample results exceeded 40 μ g/ft². In other work areas of the facility, any surface lead level that exceeds 200 μ g/ft² is considered significant. The sample collected in "Repair 3" exceeded 200 μ g/ft² and the sample collected in the 684th Medical Company maintenance area was just below the limit.

A paint chip sample was collected from the "Repair 3" area and submitted for lead analysis (Figure 1). The sample result was less than 0.5% lead by weight. There appeared to be some water damage and mold growth along this wall. Some of the overhead pipe insulation in the corridor for the 684th Medical Company maintenance area has tested positive for asbestos in the past and is labeled accordingly. There was some damaged insulation observed in this same area (Figure 2).

Table 1Surface Wipe Sampling Results for LeadOhio Army National Guard DSCC Armory, Columbus OhioMarch 12, 2013

Sample #	Location	Photo	Sample Area (ft ²)	Lead (µg/ft ²)	Assessment Level (µg/ft²)	Exceeds Criterion?
W1-ARM	Drill floor on top of snack machine		1.0	<91	40 (child occupied)	No
W2-ARM	Kitchen on top of double oven		1.0	<91	40 (child occupied)	No
W3-ARM	Classroom 207 on lectern shelf	05/12/4019 12-47	1.0	<91	40 (child occupied)	No
W4-ARM	684 th Medical Company maintenance area on electrical control box for AHU-1		0.1	199	200 (other work area)	No
W5-ARM	"Repair 3" near storage cages on shower exhaust fan control		0.1	714	200 (other work area)	Yes
W6-GA	Blank	Blank	ND	ND	ND	No

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.



Figure 1. Paint Chip Sample Collection in the "Repair 3" Area.



Figure 2. Damaged Overhead Pipe Insulation in 684th Medical Company Corridor.

Recommendations:

- Continue to clean the horizontal surfaces in child occupied areas to less than 40 µg/ft² using high efficiency particulate air (HEPA) filter vacuums and/or wet methods (RAC 3).
- Clean the horizontal surfaces in the converted firing range and other work areas of the facility to 200 µg/ft2 using HEPA filter vacuums and/or wet methods (RAC 2). This is an older facility and the housekeeping effort should be increased to remove visible accumulations of dust from horizontal surfaces.
- The peeling paint in the "Repair 3" area should be repaired, but it is not classified as lead-based paint and does not required lead based paint handling procedures (RAC 3). Repair the water leak and clean the mold from the wall. Recommended guidance for mold remediation is found in USAPHC TG 277 found at: http://phc.amedd.army.mil/PHC%20Resource%20Library/TG277.pdf (RAC 3).
- The damaged pipe insulation in the corridor for the 684th Medical Company maintenance area should be evaluated for asbestos content and repaired following all applicable requirements for asbestos abatement if the material contains asbestos (RAC 3).

Technical Assistance: This report was written by **Non-Responsive** as a representative of FOH, USPHS. **Non-Responsive**, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at **Non-Responsive**.

Reviewed by:

Non-Responsive



Appendix A

Laboratory Result Report and Chain of Custody Sheet

·2 · 1798 · 3	
	ANALYTICAL REPORT
Submitted To:	USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225
Attention:	Non-Responsive
Submitted By:	
Reference Data:	Lead
Sampling Site: Sample Media:	NGB: Columbus, OH (Armory DSCC) Ghost Wipe(s)⊛ and Paint
Method Reference	E OSHA ID-121
Project ID: DEOH Lab Nos :	Project 10968 TM-13-60010 through TM-13-60016
Date Received:	03/14/13
Data Analyzed:	03/19/13 - 03/20/13
Date Issued:	03/22/13
The wipe samples w were run on a Perkin	ere hot plate digested. The paint samples were microwave digested. The samples Elmer 200 flame atomic absorption spectrophotometer (AA).
General Lab Comme	nts:
All quality control crite All samples received	ana have been met. d in condition acceptable for analysis unless otherwise noted
" Sample results have	ve not been corrected for contamination based on the field blank or other analytical
blank unless otherwis	e noted.
Analytical results are questions about these	given on the enclosed tables. Results relate only to items tested. If you have any e results, feel free to phone the Laboratory at (312) 886-0413.
Nor	I-Responsive



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Appendix B

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

	D (Exposure Conditions					
Alternate of Expo	Alternate Route of Exposure		Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD		
AER	NO	0	3	5	7		
Possible	YES	1-2	4	6	8		

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	5
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7 0
such as asbestosis or lung cancer	1-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure					
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous			
Irregular/ Intermittent	1-2	4-6	NA			
Regular/Periodic	2-3	5-7	8			

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

ППСС	MPC					
ппос	A	В	С	D		
I	1	1	2	3		
I	1	2	3	4		
III	2	3	4	5		
IV	3	4	5	5		

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Surface Lead Monitoring Survey Report

at

Ohio Army National Guard Kettering Armory 2555 Countyline Road Kettering, Ohio

Survey Date: December 5, 2012



for

Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > December 11, 2012

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FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 57 of 235

Table of Contents

- I. Executive Summary
- II. Introduction
- III. Site Description
- IV. Scope of Work
- V. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List
- B. Laboratory Result Reports and Chain of Custody Sheets
- C. Occupational Health Risk Assessment Codes (RACs)
- D. Floor Plan

I. <u>Executive Summary</u>

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface lead monitoring at the Ohio Army National Guard Armory located in Kettering, Ohio. This survey was performed in order to further characterize lead levels on surfaces within the facility. High lead levels were identified during a previous survey.

This sampling effort for lead surface contamination targeted the old firing range/storage area. The chemical, biological, radiological, nuclear and high yield explosive (CBRNE) enhanced response force packages (CERFP) equipment stored in this room is critical to the regional response mission and requires frequent access for training purposes. The storage area and equipment have been quarantined for training purposes until potential lead contamination is evaluated; in case of a real emergency, the CERFP equipment is cleared for use. Note: CERFP team members must be informed of the potential for lead contamination of this equipment prior to use.

Wipe samples were collected on representative surfaces throughout the facility and analyzed for lead. Three of the samples contained levels of lead above the NGB Industrial Hygiene surface limit of 200 micrograms per square foot (μ g/ft²) for work areas. These samples were all collected in the old firing range. The CERFP equipment stored in the old firing range is potentially contaminated with lead based on these findings. All other sample results were less than the reporting limit of the analytical method.

The old firing range must be cleaned in accordance with NG Pam 420-15, Facilities Engineering, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Range.* The equipment must be stored in another location until the range remediation is complete (or the equipment can be relocated permanently). The equipment cleaning protocols identified in NG Pam 420-15 include vacuuming with a high-efficiency particulate air (HEPA) vacuum and/or wet wipe methods. Consult a licensed contractor to remediate this area and provide additional abatement guidance (RAC 2).

II. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface lead monitoring at the Ohio Army National Guard Armory located in Kettering, Ohio. High lead levels were identified during a previous survey completed on September 21, 2012 by USPHS representatives. <u>Non-Responsive</u>, Certified Industrial Hygienist (CIH), conducted this survey on December 5, 2012 in order to further characterize lead levels on surfaces within the facility.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Kettering Armory was completed in 1972 and the facility currently serves the home station for the 637th Chemical Company. The facility includes a drill floor (Figure 1), classrooms, kitchen, latrines, fitness room, supply rooms and vaults, and administrative offices. Weapons are cleaned in multiple locations in the facility. No community activities are held in the facility on a regular basis according to site personnel. Children are present for special occasions and family gatherings approximately twice a year for up to three hours.



Figure 1 – Drill Floor.

The Kettering Armory had a firing range in that was converted to storage space between 1990 and 1992 (Figure 2). The old range area is currently used as a storage room for chemical, biological, radiological, nuclear and high yield explosive (CBRNE) enhanced response force packages (CERFP) team equipment and supplies. The CERFP teams have a command and control section, a decontamination element, a medical element, a casualty search and extraction element, and a fatalities search and recovery element.

Dick Melling, the Building Maintenance Lead, stated the following major steps were completed during conversion of the space:

- Removed steel at pit
- Removed sand in pit and poured concrete
- Painted block walls
- Mopped and cleaned surfaces

He added that the metal cages were added between 1993 and 1994, the kitchen and heating ventilation and air conditioning systems were renovated in 2002, and the roof was replaced more recently. Mr. Melling also stated that the return air duct traversing above the old bullet trap area and some of the light fixtures are original range equipment.



Figure 2 – Room 121 Storage Area/Old Firing Range.

IV. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for further evaluation of high lead surface contamination identified in the previous industrial hygiene survey. This survey included a walkthrough of the facility, sample collection, and interviews with employees.

V. Findings, Discussion, and Recommendations

Surface Wipe Sampling

Assessment Criteria

At present, there are no Occupational Safety and Health Administration (OSHA) regulated levels for these toxic metals on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (µg/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. Any surface lead

level that exceeds 200 µg/ft² in any other area of the facility is considered significant. NG Pam 420-15 may be found at: <u>http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf</u>. The lead assessment criteria are based on the Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) 40 CFR 745 and the Housing and Urban Development (HUD) 24 CFR 35 definitions for dust-lead hazards for interior window sills and floors.

Wipe Sampling Method

Surface samples were collected using Environmental Express Ghost[™] Wipes. Surface wipe templates that encompassed either 1 square foot (child occupied areas) or 0.11 square foot (other work areas) of surface area were used to collect samples. For each surface sample collected, a new set of gloves and a new numbered template was used. The entire template area was wiped using and "S" configured motion. The wipe was then folded in half and the template area was wiped using an "S" motion in a direction perpendicular to the first. The wipe was folded again and the perimeter of the area was wiped. The wipe was placed into a plastic centrifuge tube, capped, and the samples were sent to the FOH Laboratory in Chicago, Illinois. Samples were hot plate digested and analyzed for lead with a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Sampling Strategy and Results

One result from the September 21, 2012 survey measured 6,500 μ g/ft² which is well above the NGB Industrial Hygiene surface limit of 200 μ g/ft² for lead. This sample was collected on the floor in the old firing range and prompted this resurvey. A second sample result, collected on a table in the Room 116 vault, was 176 μ g/ft², which is just below the limit. Surface sample results for the kitchen, Vault #3 (Room 115), the drill hall were less than the reporting limit of the analytical method.

This sampling effort targeted the old firing range/storage area (Room 121). The CERFP equipment stored in this room is critical to the regional response mission and requires frequent access for training purposes. Major Reese asked that specific equipment (fire bags, radios, respirators, and MREs) be assessed and cleared for use as soon as possible. The storage area and equipment have been quarantined for training purposes until potential lead contamination is evaluated; in case of a real emergency, the equipment is cleared for use. Note: CERFP team members must be informed of the potential for lead contamination of this equipment prior to use.

Site personnel stated that weapons are cleaned in multiple locations throughout the building and identified several classrooms that are commonly used. Additional samples were conducted in these classrooms, the drill floor, and fitness room to determine if these areas are sources of lead contamination or if lead has migrated to these spaces. The sampling strategy included collection of wipes from areas with undisturbed settled dust to identify potential sources of lead, samples on or near CERFP items in order to release key equipment for exercise use, and wipes from higher traffic locations such as floors and tables to assess possible migration patterns.

Twelve surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead. The results are contained in Table 1 and photos of the sample locations are included in Figure 3. Three of the samples contained levels of lead above the NGB Industrial Hygiene surface limit for lead of 200 μ g/ft² for other work areas. These samples were all collected in the old firing range.

The space in which the CERFP equipment is stored showed high lead levels, particularly in and above the old bullet trap/pit area and on a structural wood member of the fire bag cage. Note that surface samples were not collected directly on the cloth fire and respirator bags since sample results on porous materials are unreliable. The CERFP equipment stored in the old firing range is potentially contaminated with lead based on these findings. All other sample results were less than the reporting limit of the analytical method, including the samples collected in the old firing range (on an MRE box and on the floor under the storage cage holding protective masks), and the sample collected at FMS 12 (on the flammable cabinet next to the shared wall with old firing range that has a 6-inch gap at the top of the block wall).

Lead can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. The main exposure routes are through inhalation of dust and fumes and the incidental ingestion of dust from contaminated hands, food, or cigarettes.

—

l able 1
Surface Wipe Sampling Results for Metals
Ohio Army National Guard
Kettering Armory, Kettering, Ohio
December 5, 2012

Sample #	Location	Surface Area (ft ²)	Lead (µg/ft ²)	
	NGB Industrial Hygiene Surface Limit		40 (child) 200 (other)	
W60	Drill floor on the floor next to soda machine adjacent to Classroom 1*	1.0	<10	
W61	Classroom 1 on top of refrigerator	0.11 <91		
W62	Classroom 106 on center window sill	0.11	<91	
W63	Fitness Room 126 on table near door	0.11	<91	
W64	Old firing range in bullet trap/pit area on top of return air vent servicing the drill floor	0.11	<mark>17,636</mark>	
W65	Old firing range in bullet trap/pit area on shelf with radios	0.11	<mark>559</mark>	
W66	Old firing range on horizontal member of the wood framing inside storage cage with CERFP fire bags (PPE in red duffel bags)	0.11	<mark>315</mark>	
W67	Old firing range storage cage on MRE box near old firing line	0.11	<91	
W68	Old firing range on floor under storage cage holding protective masks	0.11	<91	
W69	Drill floor on table next to 155 th supply room	0.11	<91	
W70	Drill floor on Amnesty box near the front entrance/foyer	0.11	<91	
W71	FMS 12 on flammable cabinet FL01 (shared wall with old firing range)	0.11	<91	
W72	Blank	N/A	ND	

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) N/A = not applicable; ND = none detected. 3) **Bold** indicates the concentration was "significant." 4) "<" means less than the reporting limit for the analytical method. 5) "*" indicates a potentially child occupied area of the facility or items used by children.

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Recommendations:

- The old firing range must be cleaned in accordance with NG Pam 420-15, Facilities Engineering, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*. This procedure may be found at the following link: <u>http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf</u>. Consult a licensed contractor to remediate this area and provide additional abatement guidance (RAC 2).
- 2. The CERFP equipment stored in the old firing range must be thoroughly cleaned and then stored in another location until the range remediation is complete (or the equipment can be relocated permanently). Use the equipment cleaning protocols identified in NG Pam 420-15 which include vacuuming with a high-efficiency particulate air (HEPA) vacuum and/or wet wipe methods. For radios and other hard, non-porous surfaces, wipes treated with toxic metal removing solution may provide an expedited cleaning option, (e.g., Hygenall[®] FieldWipes[™] non-rinse decontamination and cleaning wipes) (RAC 2).
- 3. When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet wiping surfaces or HEPA vacuuming to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 3).
- 4. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).



Sample W60



Sample W62



Sample W61



Sample W63





Sample W64

Surface Lead Monitoring Survey Survey Date: December 5, 2012



Sample W65



Sample W66



Sample W68



Sample W70



Sample W67



Sample W69



Sample W71

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Reviewed by:

Non-Responsive

Non-Responsive

Appendix A

Point of Contact (POC) List

Ohio Army National Guard State POC

, Occupational Health Nurse and State Radiation Safety Officer

Armory POCs

on-Responsive

, Building Maintenance Lead

Non-Responsive

Appendix B

Laboratory Result Report and Chain of Custody Sheet

121		
Final Party P	FOH ENVIRONMENTAL LABORATORY	
5 1705 S	538 S. CLARK STREET CHICAGO, IL 80806 PHONE: (312) 888-0413 FAX: (312) 888-0454	
	ANALYTICAL REPORT	
Submitted To:	USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225	
Attention:	Non-Responsive	
Submitted By:		
Reference Data: Sampling Site:	Lead NGB: Kettering, OH (Armory)	
Sample Media: Method Referen	Ghost Wipe(s)® noe: OSHA ID-121 Protect 10922	
DFOH Lab Nos. Date Received:	.: TM-13-58614 through TM-13-58626 12/07/12	
Data Analyzed: Date Issued:	12/07/12 - 12/10/12 12/10/12	
The wipe samples absorption spectrop	were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic photometer (AA).	
General Lab Comm All quality control or	nents: riteria have been met.	
* All samples receiv ** Sample results h blank unless otherv	ved in condition acceptable for analysis unless otherwise noted. have not been corrected for contamination based on the field blank or other analytical wise noted.	
Analytical results a questions about the	are given on the enclosed tables. Results relate only to items tested. If you have any ese results, feel free to phone the Laboratory at (312) 888-0413.	
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Surface Lead Monitoring Survey Survey Date: December 5, 2012

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* Applied to organic a	nd inorg	anic an	alysis in	cases (of an e	mergency only	Applied to in	norganik	c and o	organic si	ample	s, SD: A	pplied	to organie	c and inorganic sample	\$ 7-10	busines	s Gays.	

Appendix C

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

		Exposure Conditions						
Alternate of Expo	Route sure	<ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>	Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD			
AER	NO	0	3	5	7			
Possible	YES	1-2	4	6	8			

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	0
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7 0
such as asbestosis or lung cancer	1-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.
STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

		Length of Exposure	
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/ Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

		M	PC	
ппос	A	В	С	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Appendix C



18 BEST AVAILABLE COPY

FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 74 of 235

Surface Lead Monitoring Survey Report

for

Ohio Army National Guard Armory 4497 Hawk Drive McConnelsville, Ohio

Survey Date: February 22, 2013



Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > March 20, 2013

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I. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface lead monitoring at the Ohio Army National Guard Armory located in McConnelsville, Ohio. Non-Responsive, Certified Industrial Hygienist (CIH), conducted this survey on February 22, 2013 in order to characterize lead levels on surfaces within the facility.

II. <u>Site Description</u>

The McConnelsville Armory is collocated with Field Maintenance Shop 8. The armory was constructed in 1996 and has never contained an indoor firing range. Weapons are cleaned on the drill floor. Children are present in the facility on the drill floor on a routine basis. SGT

III. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of lead contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees. Appendix A includes the analytical laboratory report and chain of custody forms and Appendix B includes the risk assessment code (RAC) methodology.

IV. Findings, Discussion, and Recommendations

Wipe samples were collected on targeted surfaces with visible dust accumulations in the facility using the Occupational Safety and Health Administration (OSHA) wipe sampling method. The samples were analyzed for lead by OSHA Method ID-121. The results and sampling photos are contained in Table 1.

At present, there are no OSHA regulated levels for lead on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (μ g/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. In the potentially child occupied areas tested in this facility, one of the surface wipe sample results from the drill floor (on top of soda machine) exceeded 40 μ g/ft². In other work areas of the facility, any surface lead level that exceeds 200 μ g/ft² is considered significant. None of the surface wipe sample results from other work areas exceeded 200 μ g/ft².

Recommendations:

- Clean the horizontal surfaces in child occupied areas to less than 40 μg/ft² using high efficiency particulate air (HEPA) filter vacuums and/or wet methods (RAC 2).
- Continue to clean the horizontal surfaces in the converted firing range and other work areas of the facility to 200 µg/ft² using HEPA filter vacuums and/or wet methods (RAC 3).

Table 1Surface Wipe Sampling Results for LeadOhio Army National Guard Armory, McConnelsvilleFebruary 22, 2013

Sample #	Location	Photo	Sample Area (ft ²)	Lead (µg/ft ²)	Assessment Level (µg/ft ²)	Exceeds Criterion?
W1-MA	Battalion S3 Office 218 on top of file cabinet.	A THE REAL	0.1	<91	200 (other work area)	No
W2-MA	Drill floor on top of soda machine		1.0	57	40 (child occupied)	Yes
W3-MA	Kitchen (Room 152) on top of double oven		1.0	<10	40 (child occupied)	No
W4-MA	Corridor near Stair B on top of vending machine		0.1	<91	200 (other work area)	No
W5-MA	Physical fitness room on bookshelf		0.1	<91	200 (other work area)	No
W6-MA	Blank	Blank	ND	ND	ND	No

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

Technical Assistance: This report was written by Non-Responsive as a representative of FOH, USPHS. Non-Responsive, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at Non-Responsive

Reviewed by:

Non-Responsive



Appendix A

Laboratory Result Report and Chain of Custody Sheet

4/34	ANALYTICAL REPORT
Submitted To:	USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225
Attention:	Non-Responsive
Submitted By:	
Reference Data: Sampling Site: Sample Media: Method Reference	Lead NGB: McConnelsville, OH (Armory) Ghost Wipe(s)® ee: OSHA ID-121
Project ID: DFOH Lab Nos.:	Project 10933 TM-13-59686 through TM-13-59691
Date Received: Data Analyzed: Date Issued:	02/26/13 02/27/13 - 03/01/13 03/07/13
The wipe samples v absorption spectrop	vere hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic hotometer (AA).
General Lab Comm All quality control or * All samples receiv ** Sample results h blank unless otherw Analytical results ar	ents: teria have been met. ed in condition acceptable for analysis unless otherwise noted. ave not been corrected for contamination based on the field blank or other analytica ise noted. e given on the enclosed tables. Results relate only to items tested. If you have an
questions about the	se results, feel free to phone the Laboratory at (312) 886-0413.



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Surface Lead Monitoring Survey Survey Date: February 22, 2013

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Appendix B

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

	D ,	Exposure Conditions							
Alternate of Expo	Alternate Route of Exposure		Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD				
AER	NO	0	3	5	7				
Possible	YES	1-2	4	6	8				

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	5
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7 0
such as asbestosis or lung cancer	1-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

		Length of Exposure	
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/ Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

ЦЦСС		M	PC	
ппос	A	В	С	D
I	1	1	2	3
I	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Surface Lead Monitoring Survey Report

for

Ohio Army National Guard Armory 5999 West Airport Drive North Canton, Ohio

Survey Date: February 19, 2013



Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > March 20, 2013

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I. Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface lead monitoring at the Ohio Army National Guard Armory located in North Canton, Ohio. Non-Responsive, Certified Industrial Hygienist (CIH), conducted this survey on February 19, 2013 in order to characterize lead levels on surfaces within the facility.

II. <u>Site Description</u>

The North Canton Armory is collocated with Field Maintenance Shop 6 and Army Aviation Support Facility 1. The armory contains a converted indoor firing range that is now used for storage. Weapons are cleaned on the drill floor. Children are present in the facility in multiple locations on a monthly basis. The facility contacts for this survey were Non-Responsive and Non-Responsive, Maintenance Supervisor.

III. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of lead contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees.

IV. Findings, Discussion, and Recommendations

Wipe samples were collected on targeted surfaces with visible dust accumulations in the facility using the Occupational Safety and Health Administration (OSHA) wipe sampling method. The samples were analyzed for lead by OSHA Method ID-121. The results and sampling photos are contained in Table 1. Appendix A includes the analytical laboratory report and chain of custody forms and Appendix B includes the risk assessment code (RAC) methodology.

At present, there are no OSHA regulated levels for lead on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (μ g/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. In the potentially child occupied areas tested in this facility, none of the surface wipe sample results exceeded 40 μ g/ft². In other work areas of the facility, any surface lead level that exceeds 200 μ g/ft² is considered significant. One of the two samples collected in the converted firing range exceeded 200 μ g/ft².

Recommendations:

- Continue to clean the horizontal surfaces in child occupied areas to less than 40 µg/ft² using high efficiency particulate air (HEPA) filter vacuums and/or wet methods (RAC 3).
- Clean the horizontal surfaces in the converted firing range and other work areas of the facility to 200 µg/ft² using HEPA filter vacuums and/or wet methods (RAC 2).

Table 1Surface Wipe Sampling Results for LeadOhio Army National Guard Armory, North CantonFebruary 19, 2013

Sample #	Location	Photo	Sample Area (ft ²)	Lead (µg/ft²)	Assessment Level (µg/ft²)	Exceeds Criterion?
W1-GA	Barkey Classroom (Room 127) on bottom shelf of lectern.		1.0	36	40 (child occupied)	No
W2-GA	Drill floor on top of microwave oven		1.0	17	40 (child occupied)	No
W3-GA	Scullery on shelf	W/3-GA W/3-GA	1.0	<10	40 (child occupied)	No
W4-GA	Old firing range on top of caged storage (fiberboard)	W4-GA BINDIN HIS	0.1	523	200 (other work area)	Yes
W5-GA	Old firing range on bookshelf		0.1	<91	200 (other work area)	No
W6-GA	Blank	Blank	ND	ND	ND	No

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

Technical Assistance: This report was written by **Non-Responsive** as a representative of FOH, USPHS. **Non-Responsive**, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at **Non-Responsive**.

Reviewed by:

Non-Responsive



Appendix A

Laboratory Result Report and Chain of Custody Sheet

	ANALYTICAL DEPOST
	ANALYTICAL REPORT
Submitted To:	USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225
Attention: Submitted By:	Non-Responsive
Reference Data: Sampling Site: Sample Media Method Refere Project ID: DFOH Lab No Date Received Data Analyzed Date Issued:	Eead : NGB: N. Canton, OH (Armory) :: Ghost Wipe(s)® ence: OSHA ID-121 Project 10931 is.: TM-13-59074 through TM-13-59679 d: 02/26/13 d: 02/27/13 - 03/01/13 03/07/13
The wipe sample: absorption spectro	s were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomi ophotometer (AA).
General Lab Com All quality control " All samples rece "" Sample results blank unless othe	iments: criteria have been met. eived in condition acceptable for analysis unless otherwise noted. ; have not been corrected for contamination based on the field blank or other analytic: rwise noted.
Analytical results questions about the	are given on the enclosed tables. Results relate only to items tested. If you have an hese results, feel free to phone the Laboratory at (312) 886-0413.
Nor	1-Responsive



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Surface Lead Monitoring Survey Survey Date: February 19, 2013

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Appendix B

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

	D ,	Exposure Conditions					
Alternate of Expo	Route sure	<ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>	Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD		
AER	NO	0	3	5	7		
Possible	YES	1-2	4	6	8		

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	5
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7.0
such as asbestosis or lung cancer	7-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure					
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous			
Irregular/ Intermittent	1-2	4-6	NA			
Regular/Periodic	2-3	5-7	8			

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

ЦЦСС		M	PC	
ппос	A	В	С	D
I	1	1	2	3
I	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Surface Metal Monitoring Survey Report

at

Ohio Army National Guard Stow Armory 4630 Allen Road Stow, Ohio

Survey Date: September 27, 2012



for

Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > October 31, 2012

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FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 93 of 235

Table of Contents

- I. Executive Summary
- II. Introduction
- III. Site Description
- IV. Scope of Work
- V. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List
- B. Laboratory Result Reports and Chain of Custody Sheets
- C Occupational Health Risk Assessment Codes (RACs)

I. <u>Executive Summary</u>

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Armory located in Stow, Ohio. This survey was conducted in order to identify toxic metal levels on surfaces within the facility.

The Stow Armory, also known as the Robert Pinn Armory, is Headquarters for the 1-145th Armored Regiment. The facility was constructed in 1974 and encompasses a drill floor, offices, classrooms, kitchen, latrines, physical fitness room, supply room, and weapons vaults. The Stow Armory had a firing range that was converted to a physical fitness room and storage space in the 1999. Weapons are cleaned on the drill floor. Youth basketball and Girl Scouting activities are routinely held at the armory.

Seven surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. One of the samples contained levels of lead above the NGB Industrial Hygiene surface limit of 40 μ g/ft² for child occupied areas. Two samples also had low, but detectable, levels of cadmium. All other sample results were less than the detection limit of the analytical method.

Continue to clean the horizontal surfaces in work and storage areas, particularly in areas, such as the drill floor, where children may be present (RAC 2). When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 2). Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 2).

Introduction

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Armory located in Stow, Ohio. This survey was conducted in order to identify exposure levels of hazardous chemical, physical, and biological agents for Army National Guard employees engaged in a full range of work responsibilities and tasks. Ms. Lori Arent, Certified Industrial Hygienist (CIH), conducted this survey on September 27, 2012.

FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. <u>Site Description</u>

The Stow Armory, also known as the Robert Pinn Armory, is Headquarters for the 1-145th Armored Regiment. The facility was constructed in 1974 and encompasses a drill floor, offices, classrooms, kitchen, latrines, physical fitness room, supply room, and weapons vaults. The Stow Armory had a firing range that was converted to a physical fitness room and storage space in the 1999. Weapons are cleaned on the drill floor. Youth basketball and Girl Scouting activities are routinely held at the armory.



Figure 1 – Drill Floor.

IV. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of toxic metal contamination. The survey included a walkthrough of the facility and interviews with employees.

V. Findings, Discussion, and Recommendations

Surface Wipe Sampling

Assessment Criteria

At present, there are no Occupational Safety and Health Administration (OSHA) regulated levels for these toxic metals on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (µg/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. Any surface lead level that exceeds 200 µg/ft² in any other area of the facility is considered significant. NG Pam 420-15 may be found at: http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf. The lead assessment criteria are based on the Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) 40 CFR 745 and the Housing and Urban Development (HUD) 24 CFR 35 definitions for dust-lead hazards for interior window sills and floors.

For cadmium and chromium, NGB Industrial Hygiene has adopted surface limits of 28 µg/ft² for cadmium and 6,970 µg/ft² for total chromium based on the recommendations of the Brookhaven National Laboratory, *Surface Wipe Sampling Procedure*, IH75190 Rev 18, 5/10/11. In addition, DoD has instituted a new policy (DTM 12-003, *Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, April 18, 2012) to minimize surface contamination levels of toxic metals. The main exposure routes are through inhalation of dust and fumes and the incidental ingestion of dust from contaminated hands, food, or cigarettes.

Wipe Sampling Method

Surface samples were collected using Environmental Express Ghost[™] Wipes. Surface wipe templates that encompassed either 1 square foot (child occupied areas) or 0.11 square foot (other work areas) of surface area were used to collect samples. For each surface sample collected, a new set of gloves and a new numbered template was used. The entire template area was wiped using and "S" configured motion. The wipe was then folded in half and the template area was wiped using an "S" motion in a direction perpendicular to the first. The wipe was folded again and the perimeter of the area was wiped. The wipe was placed into a plastic centrifuge tube, capped, and the samples were sent to the FOH Laboratory in Chicago, Illinois. Samples were hot plate digested and analyzed for lead with a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Results

Seven surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. The results are contained in Table 1 and photos of the sample locations are included in Figure 2. One of the samples (W8-SWA) contained levels of lead above the NGB Industrial Hygiene surface limit of 40 μ g/ft² for child occupied areas. This sample, which was collected near the main entrance on top of the lower microwave oven next to the vending machines also had low, but detectable, levels of cadmium. Sample W5-SWA collected in Classroom 2 (Room 147) on a table also had low, but detectable levels of cadmium.

organs, and reproductive system if inhaled or ingested in dangerous quantities. Potential adverse effects of long-term exposure to cadmium include kidney dysfunction, lung cancer, and prostate cancer. All other sample results were less than the reporting limit of the analytical method.

Table 1 Surface Wipe Sampling Results for Metals Ohio Army National Guard Stow Armory Stow, Ohio September 27, 2012

Sample #	Location	Lead (µg/ft ²)	Cadmium (µg/ft ²)	Chromium (µg/ft ²)	
NGB	Industrial Hygiene Surface Limit	40 (child) 200 (other)	28	6,970	
W1-SWA	Storage bay on locker (old firing line)	<91	<9.1	<91	
W2-SWA	Physical fitness room under rubber floor mat (bullet trap end)	<91	<9.1	<91	
W3-SWA	737 th Vault 4 on top of M9 rack	<91	<9.1	<91	
W4-SWA	Kitchen on top of hand towel rack	<91	<9.1	<91	
W5-SWA	Old DFAC, Room 159 on ventilation equipment**	<10	3.0	<10	
W6-SWA	Classroom 2, Room 147 on table near door**	<10	<1.0	<10	
W7-SWA	Blank	ND	ND	ND	
W8-SWA	Drill floor on top of microwave**	<mark>65</mark>	3.6	<10	

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected.

3) **Bold** indicates the concentration was "significant." 4) "<" means less than the reporting limit for the analytical method. 5) "**" indicates a potentially child occupied area of the facility.

Figure 2 - Surface Wipe Sample Locations (below).



Sample W1-SWA



Sample W3-SWA (no photos inside vault)



Sample W2-SWA



Sample W4-SWA



Sample W5-SWA

Sample W6-SWA

Sample W8-SWA

Recommendations:

- 1. When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 2).
- 2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 2).
- 3. Continue to clean the horizontal surfaces in work and storage areas, particularly in areas where children may be present (RAC 2).

Technical Assistance: This report was written by Non-Responsive as a representative of FOH, USPHS. Non-Responsive, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at **Non-Responsive**.

Reviewed by:



Appendix A

Point of Contact (POC) List

Ohio Army National Guard State POC

, Occupational Health Nurse and State Radiation Safety Officer

Non-Responsive

Armory POCs Non-Responsive

Appendix B





FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60606 PHONE: (312) 886-0413 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
W1-SWA	TM-13-57681	<10	<91
W2-SWA	TM-13-57682	<10	<91
W3-SWA	TM-13-57683	<10	<91
W4-SWA	TM-13-57684	<10	<91
W5-SWA	TM-13-57685	<10	<10
W6-SWA	TM-13-57686	<10	<10
W7-SWA**	TM-13-57687	<10	None Detected
W8-SWA	TM-13-57688	65	65

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (up/ft ²)
W1-SWA	TM-13-57681	<1.0	<9.1
W2-SWA	TM-13-57682	<1.0	<9.1
W3-SWA	TM-13-57683	<1.0	<9.1
W4-SWA	TM-13-57684	<1.0	<9.1
W5-SWA	TM-13-57685	3.0	3.0
W6-SWA	TM-13-57686	<1.0	<1.0
W7-SWA**	TM-13-57687	<1.0	None Detected
W8-SWA	TM-13-57688	3.6	3.6

CHROMIUM on WIPE RESULTS

SAMPLE	LABORATORY	CONCENTRATION	CONCENTRATION
W1-SWA	TM-13-57681	(µg) <10	(µg/π*) <91
W2-SWA	TM-13-57682	<10	<91
W3-SWA	TM-13-57683	<10	<91
W4-SWA	TM-13-57684	<10	<91
W5-SWA	TM-13-57685	<10	<10
W0-SWA W7-SWA''	TM-13-57687	<10	<10 None Detected
W8-SWA	TM-13-57688	<10	<10

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Cadmium	29	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium	6,970	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills



Project 10721 Page 2 of 3



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Surface Metal Monitoring Survey Survey Date: September 27, 2012

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Appendix C Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

		Exposure Conditions						
Alternate of Expo	of Exposure <ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>		Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD			
AER	NO	0	3	5	7			
Possible	YES	1-2	4	6	8			

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure					
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous			
Irregular/ Intermittent	1-2	4-6	NA			
Regular/Periodic	2-3	5-7	8			

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	В	С	D
I	1	1	2	3
I	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Surface Metal Monitoring Survey Report

at

Ohio Army National Guard Woods King Armory 4303 Green Road Cleveland, Ohio

Survey Date: September 26, 2012



for

Department of the Army National Guard Bureau Region West Industrial Hygiene Office NGB-AVN-S1

> Performed by U.S. Public Health Service Federal Occupational Health

> > October 29, 2012

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FOIA Requested Record #J-15-0085 (OH) Released by National Guard Bureau Page 108 of 235
Table of Contents

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- V. Findings, Discussion, and Recommendations

Appendices

- A. Point of Contact (POC) List
- B. Laboratory Result Reports and Chain of Custody Sheets
- C Occupational Health Risk Assessment Codes (RACs)

I. <u>Executive Summary</u>

At the request of the National Guard Bureau (NGB) Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service (USPHS), Division of Federal Occupational Health (FOH) conducted surface metal monitoring at the Ohio Army National Guard Woods King Armory located on Green Road in Cleveland, Ohio. This survey was conducted in order to identify toxic metal levels on surfaces within the facility.

The Woods King Armory, also known as the Green Road Armory, is Headquarters for the 237th Brigade Support Battalion and houses the Company A 237th Brigade Support Battalion and Company B 1-145th Armored Regiment. The facility layout includes a drill floor, offices, classrooms, kitchen, latrines, physical fitness room, supply room, and weapons vaults. The Woods King Armory had a firing range that was converted to a physical fitness room in the late 1970's. Weapons are cleaned on the drill floor and in the supply room. There are community activities held in the facility on a regular basis.

Six surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. One of the six samples contained levels of lead above the NGB Industrial Hygiene surface limit of 40 μ g/ft² for child occupied areas and also above 200 μ g/ft² for other work areas. This sample, which was collected on top of a storage cabinet on the drill floor near the kitchen, also had low, but detectable, levels of cadmium and chromium. All other sample results were less than the reporting limit of the analytical method.

Houskeeping at this facility was very good. Continue to clean the horizontal surfaces in work and storage areas, particularly in areas, such as the drill floor, where children may be present (RAC 2). When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 2). Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 2).

II. Introduction

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FOH conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Woods King Armory, also known as the Green Road Armory, is Headquarters for the 237th Brigade Support Battalion and houses Company A 237th Brigade Support Battalion and Company B 1-145th Armored Regiment. The facility encompasses a drill floor (Figure 1), offices, classrooms, kitchen, latrines, physical fitness room, supply room, and weapons vaults. The Woods King Armory had a firing range that was converted to a maintenance bay and storage area in the late 1970's and is currently used as a physical fitness room. Weapons are cleaned on the drill floor and in the supply room. There are community activities held in the facility on a regular basis.



Figure 1 – Drill Floor.

IV. Scope of Work

The purpose of the site visit was to collect surface wipe samples in the building for evaluation of toxic metal contamination. The survey included a walkthrough of the facility, sample collection, and interviews with employees.

V. Findings, Discussion, and Recommendations

Surface Wipe Sampling

Assessment Criteria

At present, there are no Occupational Safety and Health Administration (OSHA) regulated levels for these toxic metals on surfaces. NGB Industrial Hygiene has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. For purposes of this report, any surface lead level that exceeds 40 micrograms per square foot (µg/ft²) in a potentially child occupied area is considered significant. NGB Industrial Hygiene considers facilities with routine public access to be potentially child occupied facilities. Any surface lead level that exceeds 200 µg/ft² in any other area of the facility is considered significant. NG Pam 420-15 may be found at: <u>http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf</u>. The lead assessment criteria are based on the Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) 40 CFR 745 and the Housing and Urban Development (HUD) 24 CFR 35 definitions for dust-lead hazards for interior window sills and floors.

For cadmium and chromium, NGB Industrial Hygiene has adopted surface limits of 28 µg/ft² for cadmium and 6,970 µg/ft² for total chromium based on the recommendations of the Brookhaven National Laboratory, *Surface Wipe Sampling Procedure*, IH75190 Rev 18, 5/10/11. In addition, DoD has instituted a new policy (DTM 12-003, *Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, April 18, 2012) to minimize surface contamination levels of toxic metals.

Wipe Sampling Method

Surface samples were collected using Environmental Express Ghost[™] Wipes. Surface wipe templates that encompassed either 1 square foot (child occupied areas) or 0.11 square foot (other work areas) of surface area were used to collect samples. For each surface sample collected, a new set of gloves and a new numbered template was used. The entire template area was wiped using and "S" configured motion. The wipe was then folded in half and the template area was wiped using an "S" motion in a direction perpendicular to the first. The wipe was folded again and the perimeter of the area was wiped. The wipe was placed into a plastic centrifuge tube, capped, and the samples were sent to the FOH Laboratory in Chicago, Illinois. Samples were hot plate digested and analyzed for lead with a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Results

Six surface wipe samples were collected on representative surfaces throughout the facility and analyzed for lead, cadmium, and chromium. The results are contained in Table 1 and photos of the sample locations are included in Figure 2. One of the six samples (W2-GRA) contained levels of lead above the NGB Industrial Hygiene surface limit of 40 μ g/ft² for child occupied

areas and also above 200 μ g/ft² for other work areas. This sample, which was collected on top of a storage cabinet on the drill floor near the kitchen, also had low, but detectable, levels of cadmium and chromium. All other sample results were less than the reporting limit of the analytical method.

Lead can cause damage to the nervous system, kidneys, blood forming organs, and reproductive system if inhaled or ingested in dangerous quantities. Potential adverse effects of long-term exposure to cadmium include kidney dysfunction, lung cancer, and prostate cancer. Chromium metal can cause irritation to the eyes and skin and lung fibrosis upon inhalation, ingestion, and skin and/or eye contact. The main exposure routes are through inhalation of dust and fumes and the incidental ingestion of dust from contaminated hands, food, or cigarettes.

Houskeeping at this facility was very good. During the survey, personnel were operating the wet floor cleaner on the drill floor (Figure 1) as part of the routine facility maintenance program. The storage cabinet on the drill floor that produced the high lead result is over 6.5 feet from the drill floor and not readily accessible, however all horizontal surfaces should be cleaned on a periodic basis to minimize the potential for toxic metals to become airborne.

Table 1 Surface Wipe Sampling Results for Metals Ohio Army National Guard Woods King Armory Cleveland, Ohio September 26, 2012

Sample #	Location	Lead (µg/ft ²)	Cadmium (µg/ft ²)	Chromium (µg/ft ²)	
NGB In	dustrial Hygiene Surface Limit	40 (child) 200 (other)	28	6,970	
W1-GRA	Physical fitness room on shelf near old bullet trap area	<91	<9.1	<91	
W2-GRA	Drill floor ** on grey storage cabinet near kitchen	13 25			
W3-GRA	Kitchen on top of the ice maker	<91	<9.1	<91	
W4-GRA	Large classroom** on 2 nd floor on top of wall mounted heating unit	<10	<1.0	<10	
W5-GRA	Small classroom (Room 202) on middle window sill	<91	<9.1	<91	
W6-GRA	Janitorial storage, family readiness supply area**	<10	<1.0	<10	
W7-GRA	Blank	ND	ND	ND	

Notes: 1) μ g / ft² = micrograms per square foot of surface area. 2) ND = none detected. 3) **Bold** indicates the concentration was "significant." 4) "<" means less than the reporting limit for the analytical method. 5) "**" indicates a potentially child occupied area of the facility or storage areas for items used by children.





Sample W1-GRA



Sample W3-GRA



Sample W5-GRA



Sample W2-GRA



Sample W4-GRA



Sample W6-GRA

Recommendations:

- 1. When weapons are cleaned in the facility, special attention should be given to cleaning up the work area, by wet mopping surfaces or vacuuming with a high-efficiency particulate air (HEPA) filter vacuum, to prevent potential toxic metal contamination from ammunition that may spread to other areas of the building (RAC 2).
- 2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 2).
- 3. Continue to clean the horizontal surfaces in work and storage areas, particularly in areas where children may be present (RAC 2).

Technical Assistance: This report was written by Non-Responsive as a representative of FOH, USPHS. Non-Responsive, Regional Industrial Hygienist at the NGB Region West Industrial Hygiene Office, reviewed and approved this report. For technical assistance regarding information found in this report or the performed survey, please contact **Non-Responsive** at **Non-Responsive**.

Reviewed by:



Appendix A

Point of Contact (POC) List

Ohio Army National Guard State POC

, Occupational Health Nurse and State Radiation Safety Officer

Armory POCs

on-Responsive

Non-Responsive

Appendix B





FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 80806 PHONE: (312) 888-0418 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY	CONCENTRATION	CONCENTRATION
W1-GRA	TM-13-57668	<10	<91
W2-GRA	TM-13-57669	224	224
W3-GRA	TM-13-57670	<10	<91
W4-GRA	TM-13-57671	<10	<10
W5-GRA	TM-13-57672	<10	<91
W6-GRA	TM-13-57673	<10	<10
W7-GRA**	TM-13-57674	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE	LABORATORY	CONCENTRATION	CONCENTRATION
NUMBER*	NUMBER	(PA)	(µg/ft²)
W1-GRA	TM-13-57668	<1.0	<9.1
W2-GRA	TM-13-57669	13	13
W3-GRA	TM-13-57670	<1.0	<9.1
W4-GRA	TM-13-57671	<1.0	<1.0
W5-GRA	TM-13-57672	<1.0	<9.1
W6-GRA	TM-13-57673	<1.0	<1.0
W7-GRA**	TM-13-57674	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft ²)
W1-GRA	TM-13-57668	<10	<91
W2-GRA	TM-13-57669	25	25
W3-GRA	TM-13-57670	<10	<91
W4-GRA	TM-13-57671	<10	<10
W5-GRA	TM-13-57672	<10	<91
W6-GRA	TM-13-57673	<10	<10
W7-GRA**	TM-13-57674	<10	None Detected

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Bacic for Criteria
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium	6,970	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sils



Project 10719 Page 2 of 3



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Surface Metal Monitoring Survey Survey Date: September 26, 2012

US PI	JBLIC	HEA	LTH S	ERV	ICE, FEDERAL	OCCUPAT	IONA	L HE	ALTH	CHA	IN-O	F-CU	STOD	Y / FIELD DATA	SHE	ET	8.0-1	
Environmental Labora 336 S. Clark Street South Chicago, IL 60605-1521	, Suite 7	'14		95.eDgecal	Agreement No.:	A 106644	GESS	248.13	For Lab Project /F Due Date	Use O	niy t:	10	17/ [5]]	Conditions on Reck	apt with	n Name	& Date	
Fel: (312)-886-0413 Fax:	: (312)-8	86-0434			Statement of Work No.:	s 163833	;		Samples	Samp	ed Chilk	CT YES	Turnia	foundstanie/Codes	Ала	lys = R	quest	07/201
Non-Re	S			ve	Project	P 165224	l		Containe	r Type	18: Class V	VOC	STD-	Standard	Π		Π	T
					Agency	ARNG			Preserva	tives:	Charles, 1	100	WH	Weekend/Holiday*	1			
					Proj. Manager	AKA G	reen	Rd	A-No	ne, B-h	12SO4.					Lec	a	
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					(City, State):	Cleveland	, ot								 k	: hr	pnzi	idi
ID #	Type'	Sample Media ^a	Collect	ed Time	Sample Location / I	Description	Flow (LPM)	Air Time (Min.)	Volume (Liters)	Area (ft ²)	Volume (Liters)	Code ³	Around Time ⁴	Lab 1D #	0	SHA	ID	- 1
WI-GRA	7	5	26581	PIZ						0,11			STD	TUH 3-57468			Λ	T
W2-GRA	7	5	(1				57669				
W3-GRA	7	5								0,11				57670				
W4-GRA	7	5								1				57671			\mathbb{A}	
W5-GRA	7	5								0.11			$ \rangle$	57672				
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	5-Dust		1-Charoox 3-PVC fitt 5 -Ghost 1 7. Other	Samp) sl 2-l er 4 Wipes™	Matched Weight, 0.8um I-M CE 0.8 um , 37 mm 6. Passive badge	Non		e	spc I		siv	(e	1000	und Both		Titola.	Imo o	1.94
COMMENTS: Pleas	e forv	vard r	esults t	o lj_a	rent@mindspri	ng.com.						-						
Applied to organic and	d inorga	inic ana	lysis in c	ases of	f an emergency only	Applied to inc	organic	and or	ganic sai	nples,	SD: Ap	plied to	organic	and inorganic samples	7-10 t	ousinee	s days	£.

Appendix C

Occupational Health Risk Assessment Codes (Reference: DOD Letter of Instructions 6055.1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel. risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel. The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed.

		Exposure Conditions					
Alternate Route of Exposure		<ct< td=""><td>Occasionally >CT Always <u><</u>STD</td><td>>CT <std< td=""><td>>STD</td></std<></td></ct<>	Occasionally >CT Always <u><</u> STD	>CT <std< td=""><td>>STD</td></std<>	>STD		
AER	NO	0	3	5	7		
Possible	YES	1-2	4	6	8		

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion. 2) CT = DoD component threshold that triggers surveillance actions, such as action level. 3) STD = DoD exposure limit, such as TLV or PEL. 4) > = Greater than. 5) < = Less than. 6) \leq = Less than or equal to.

B. Medical Effects Points Assessed.

Condition	Points
No medical effects, such as nuisance noise and nuisance	0
odor	0
Temporary reversible illness requiring supportive treatment,	1.0
such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited	2.4
period of disability, such as metal fume fever	5-4
Permanent, nonsevere illness or loss of capacity, such as	5.6
permanent hearing loss	5-0
Permanent, severe, disabling, irreversible illness or death,	7 0
such as asbestosis or lung cancer	1-0

C. The HHSC is determined by totaling the points assessed and using the following guide.

Total Points*	HHSC
13-16	
9-12	II
5-8	III
0-4	IV

* Sum of A and B above.

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards. The probability of mishap reflects the duration of exposure and the number of exposed personnel.

A. Duration of Exposure Points Assessed.

	Length of Exposure				
Type of Exposure	1-8 hr/wk	>8 hr/wk/not continuous	Continuous		
Irregular/ Intermittent	1-2	4-6	NA		
Regular/Periodic	2-3	5-7	8		

B. Number of Exposed personnel Points Assessed.

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C. The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	В
5-9	С
<5	D

* Sum of A and B above.

STEP 3: The RAC is determined using the following matrix:

циес	MPC					
ппъс	A	В	С	D		
I	1	1	2	3		
I	1	2	3	4		
III	2	3	4	5		
IV	3	4	5	5		

Beightler Armory – Surface Lead Sampling Report

State:	Facility:	Address:			
OH	Beightler Armory	2825 W. Dublin-Granville Rd., Columbus, OH 43235			
Date:	IH:	POC:			
1/8/2015	Non-Responsive	Non-Responsive			
Eacility Description: The armony is not available for public use. This facility contains a former					

Facility Description: The armory is not available for public use. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Table 1 contains the sampling results and Figure 1 shows the sampling locations for 2015; no samples were collected in September 2014 outside of the old firing range. No results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft².

Recommendations:

1. Continue housekeeping efforts in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods.

				• • • • • •	
Tabla 1	Paightlar Dark Armon	/ Surface Wine S	Sompling Doculto	for Load (January	120151
	DEIUITUEL FAIN ATTION	/ Sunace while S		IUI LEAU (Jahuah)	/ 20131.
	· · · · · · · ·				/

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHBL18	Drill hall on electrical box		<91	OHBL19	Recruitment and retention office		<91

Figure 1. Beightler Armory Floor Plan with Sampling Locations.



Page 2 of 2

Beightler IFR - Surface Lead Sampling Report

State:	Facility:	Address:			
OH	IFR - Beightler	2825 W. Dublin-Granville Rd., Columbus, OH 43235			
Date:	IH:	POC:			
1/8/2015	Non-Responsive	Non-Responsive			
Facility Description: Range converted to an exercise room, boiler room, and storage area.					

Facility Description: Range converted to an exercise room, boiler room, and storage area. **Frequency of Use:** Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations. Figure 2 shows the December 2014 sampling locations.

Lead	Contents	Structures & Furnishings
Clean <200 µg/ft ²	9	17
Moderate <1K µg/ft ²	2 (green foot lockers)	3 (boiler gas burner, garage floor, C116 on vent duct by door)
High >1K μg/ft²		1 (C116 floor)
Very High >10K μg/ft ²		
Gross > 100K µg/ft ²		
Total Number of Results >200 μg/ft ²	2/11	4/21
Summary	 Contents: 2/11 samples sho (green foot lockers). In addit Christmas items on 12/3/14 a µg/ft² (12" x 12" samples). Structures/Furnishings: 4/21 lead contamination levels. One result on C116 vent duo interior clean. 	wed moderate contamination tion, 15 samples were collected on and all results were less than 16 I result showed moderate to high ct was moderate; weight room duct

Recommendations:

1-ac

2-a

Wipe down green foot lockers before removal and use. May be lead-based paint on foot lockers; consider replacing.

Table 1. Beightler IFR Surface Wipe Sampling Results for Lead (December 2014 & January 2015).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHBL13	Room C116 old range backstop area on locker,		187	7-OH- BTLR	Room C116 inside locker 426 bottom shelf	No photo available	<91
	right side.			8-OH- BTLR	Room C116 on top of locker (5 th) large blouse	No photo available	100
OHBL14	Room C116 on basketball hoop		<91	9-OH- BTLR	Room C116 top of green foot locker (stack of 8)	No photo available	<u>293</u>
OHBL15	Old range weight room in duct		<91	10-OH- BTLR	Room C116 floor under green foot locker labeled "31 flays"	No photo available	<u>262</u>
OHBL16	Boiler room on electrical box		163	1-OH- BTLR	Weight room elliptical	No photo available	<91
				2-OH- BTLR	Weight room treadmill	No photo available	<91
OHBL17	Boiler room 2 gas burner		<u>242</u>	3-OH- BTLR	Weight room leg extension machine	No photo available	<91
1-OH- BTLR	Room C116 inside awards file cabinet	No photo available	<91	4-OH- BTLR	Weight room weigh rack	No photo available	<91
2-OH- BTLR	Room C116 top of orange file cabinet	No photo available	97	5-OH- BTLR	Weight room lat machine	No photo available	<91
3-OH- BTLR	Room C116 top of TV inside black cabinet	No photo available	<91	6-OH- BTLR	Weight room stereo	No photo available	<91
4-OH- BTLR	Room C116 inside tan cabinet under box	No photo available	<91	7-OH- BTLR	Weight room mat under power system machine	No photo available	<91
5-OH- BTLR	Room C116 inside locker 174 top shelf	No photo available	<91	8-OH- BTLR	Weight room floor under squat rack	No photo available	<91
6-OH- BTLR	Room C116 inside locker 174 bottom shelf	No photo available	196	9-OH- BTLR	Weight room base under shelves	No photo available	<91

Page **2** of **5**

Table 2.	Beightler	IFR 3	Surface	Wipe	Sampling	Results	for Lead	(September	2014).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHBT1	Old range weight room on floor across from door by wall		<91	OHBT5	Old range Room C116 on vent duct by door area		<u>244</u>
OHBT2	Old range now weight room on towel dispenser		<91	OHBT6	Old range Room C116 on floor by old bullet trap area		<u>1,495</u>
ОНВТЗ	Old range weight room in drop ceiling in front of door	CULTURE OF CONTRACT.	<91	OHBT7	Old range Room C116 on ceiling by old exhaust port		<91
OHBT4	Old range Room C116 on filing cabinet right wall from door		<91	OHBT8	Old range garage where trap exhaust was, on floor		<u>208</u>

Beightler IFR - Surface Lead Sampling Report

Figure 1. Beightler Armory Floor Plan with Sampling Locations (January 2015).

Page 4 of 5

Figure 2. Beightler Armory IFR Storage Room with Sampling Locations (December 2014).

Page 5 of 5

BEST AVAILABLE COPY Brook Park Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Brook Park Armory	6225 Engle Rd. Brook Park, OH 44142
Date:	IH:	POCs:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Table 1 contains the sampling results from 2014; no additional samples were collected in January 2015 outside of the old firing range. No results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft².

Recommendations:

1. Continue housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHBP7	On landing in stairwell by backstop area (12 x 12)		45	ОНВР9	Drill hall on vending machine (12 x 12)		<10
OHBP8	Stairwell on landing by front entrance (12 x 12)	lmage unavailable	<10	OHBP10	Drill hall by wood panel room on floor (12 x 12)		<10

Table 1. Brook Park Armory Surface Wipe Sampling Results for Lead (September 2014).

BEST AVAILABLE COPY Brook Park IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR - Brook Park	6225 Engle Rd., Brook Park, OH 44142
Date:	IH:	POC:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to supply cages and storage area (food service). **Frequency of Use:** Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing 2015 the sampling locations.

Lead	Contents	Structures & Furnishings				
Clean <200 μg/ft ²	14	1				
Moderate <1K µg/ft ²	5 (weigh scale, lockers, case)	6 (shelves, cabinet, I-beam)				
High >1K μg/ft ²		3 (tables)				
Very High >10K μg/ft ²		4 (exhaust fan to exterior, floor)				
Gross > 100K µg/ft ²						
Total Number of Results >200 μg/ft ²	5/19	13/14				
Summary	 Contents: 5/19 samples showed moderate contamination. Structures/Furnishings: 13/14 results showed moderate to very high lead contamination levels. Exhaust fan shows very high contamination. Metal backstop is present. 					

Recommendations:

1-bc

2-bd

The metal backstop should be removed and disposed IAW NG Pam 420-15.

Page **1** of **5**

Table 1	Brook Park	IFR Surface	Wipe Sam	pling Results	for Lead	(January	2015).
---------	------------	--------------------	----------	---------------	----------	----------	--------

Sample #	Location	Photo	Lead (µg/ft ²)		Sample #	Location	Photo	Lead (µg/ft ²)
OHBP- W12	Table in front of backstop (right side)		<u>1,814</u>		OHBP- W19	Top of wood lockers on floor in Room 5		120
OHBP- W13	Table in front of backstop (left side)		<u>3,550</u>		OHBP- W20	Metal storage shelf in Room 4 (commo)		<u>285</u>
OHBP- W14	Top of box of training video in Room 2		137	-	OHBP- W21	Storage locker in Room 4 (commo)		<u>258</u>
OHBP- W15	Weigh scale in Room 2		<u>669</u>		OHBP- W22	Storage box in Room 4 S- 3		127
OHBP-	Large card board boxes		<91		OHBP- W23	Storage Locker in Room 4 S- 3	No photo available	<u>505</u>
	against wall in Room 2			-	OHBP- W24	Exhaust fan to exterior Room 4 S-		<u>29,477</u>
OHBP-	Top of metal		105			3		
VV 17	Room 5	CBRN-TRAINING			OHBP-	Green locker in		235
OHRP.	Pallet of				W25	Room 4 SICUP		
W18	cots in Room 5		<91		OHBP- W26	Top of corn hole game in Room 4 SICUP	No photo available	95

BEST AVAILABLE COPY Brook Park IFR - Surface Lead Sampling Report

Sample #	Location	Photo	Lead (µg/ft ²)	Sa	mple #	Location	Photo	Lead (µg/ft ²)
OHBP- W27	Cardboard box in room 4 SICUP		180	0	HBP- W33	Equipment on metal shelf in Room 6 Bay 1		193
OHBP- W28	Metal shelf in Room 3 Bay 1		<u>259</u>	0	HBP- W34	Metal case in Room 6 Bay 2	No photo available	<u>314</u>
OHBP- W29	Top of green locker in Room 3		<91	0	HBP- W35	Metal shelf in Room 6 Bay 2		<u>231</u>
	Bay 1					Ammo		
OHBP- W30	Top of locker in Room 3 Bay 2	SI TETHEN	<91	O. I	HBP- W36	boxes in Room 6 Bay 3		<91
OHBP- W31	Top of locker in Room 3 Medic Bay		163	O I	HBP- W37	Tool box in Room 6 Bay 4		110
	(3)					Top of tool		
OHBP- W32	Top of metal cabinet in Room 3 Medic Bay		<u>217</u>	0.	HBP- W38	case in Room 6 Bay 4		<91
	(3)							

Table 2.	Brook Park IF	R Surface Wipe	Sampling Results for	Lead (September 2014).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHBP1	Old range backstop pit on floor		<u>34,818</u>	OHBP4	Old range second room from backstop outside medical cage on floor	A DECEMBENT	<u>13,300</u>
OHBP2	Old range backstop pit on table		<u>1,482</u>	OHBP5	Old range S-3 cage on shelf		<u>282</u>
ОНВРЗ	Old range room next to backstop on floor		<u>11,736</u>	ОНВР6	Old range maintenanc e storage room on I- beam	BIR/2014	<u>255</u>

Page 4 of 5

BEST AVAILABLE COPY Brook Park IFR - Surface Lead Sampling Report





Page 5 of 5

BEST AVAILABLE COPY Chagrin Falls Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Chagrin Falls Armory	7600 E. Washington St., Chagrin Falls, OH 44023
Date:	IH:	POCs:
1/12/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. No results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft² and one sample result was above 40 μ g/ft² where children may be present (drill hall). There was also some measureable lead contamination in the kitchen area.

Recommendations:

- 1. Increase housekeeping efforts in the the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 40 μg/ft² in the drill hall.
- 2. Increase housekeeping in the kitchen area.

Table 1.	Chagrin Falls Armory	/ Surface Wipe	Sampling Results for	Lead (January 2015).
		· · · · · · · · · · · · · · · · · · ·		

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHCG 23	Commanders office on cabinet		<91	OHCG 24	Drill hall on locker by supply room	22	<91

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
ОНСС9	Supply office on cabinet above desk		125	OHCG11	Kitchen on ice machine (12 x 12)		47
OHCG10	Drill hall on locker (12 x 12)	22	<u>74</u>				

Table 2. Chagrin Falls Armory Surface Wipe Sampling Results for Lead (September 2014).





Page **2** of **2**

BEST AVAILABLE COPY Chagrin Falls IFR - Surface Lead Sampling Report

State:	Facility:	Address:				
OH	IFR - Chagrin Falls	7600 E. Washington St., Chagrin Falls, OH 44023				
Date:	IH:	POC:				
1/12/2015	Non-Responsive	Non-Responsive				
Eacility Description: Range converted to an evercise room, supply cages, and storage area						

Facility Description: Range converted to an exercise room, supply cages, and storage area (CBRN, food service, and medical storage). **Frequency of Use:** Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figures 1 and 2 are floor plans showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings		
Clean <200 μg/ft ²	12	8		
Moderate <1K µg/ft ²		2 (floor, locker top)		
High >1K μg/ft ²		1 (floor)		
Very High >10K µg/ft ²		1 (light shield)		
Gross > 100K µg/ft ²				
Total Number of Results >200 μg/ft ²	0/12	4/12		
Summary	 Contents: 12 samples clean. Structures/Furnishings: 4/12 results showed moderate to very high lead contamination levels. Light shield shows very high contamination. Metal backstop is present; sound proofing material may be present. 			

Recommendations:

1-ac

2-bd

The metal backstop should be removed and disposed IAW NG Pam 420-15. There is some brown wall board with perforations on the walls in the weight room and old backstop area. If this is original sound proofing material it should be removed IAW NG Pam 420-15.

Sample #	Location	Photo	Lead (µg/ft ²)		Sample #	Location	Photo	Lead (µg/ft ²)
OHCG 13	Old range supply storage cage on green box		<91		OHCG 20	Old range backstop area on black box		<91
OHCG 14	Old range supply cage on box	Soxes School og gar	<91		OHCG 21	Old range backstop area on box		<91
OHCG 15	Old range 104 Squad 2 locker.		<91		OHCG 22	Old range fitness area on equipment		<91
OHCH 16	Old range in medic cage on green box		<91		OHCG 25	Old range vault on top of heater		140
0,005	Old range medic				1-OH- CF2	Supply room book shelf	No photo available	<91
17	cage on box	ZXZ Gauce	<91	-	1-OH- CF2	Supply room floor between desks	No photo available	<91
OHCG 18	Old range food service area on food tray	500 CT. 2202 VARR	<91		1-OH- CF2	Supply room top of elect. cabinet storage	No photo available	<91
	Old range	Id range			1-0H- CF2	Supply room computer	No photo available	<91
OHCG 19	service area on cup box		<91		1-0H- CF2	Supply room top of record files	No photo available	<91

Page 2 of 5

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHCG1	Old range weight room on floor		<91	OHCG5	Old range on top of locker		<u>396</u>
OHCG2	Old range comms cage on floor		199	OHCG6	Old range back stop area on light shield		<u>73,091</u>
ОНССЗ	Old range medic cage on floor		145	OHCG7	Old range backstop pit on floor		<u>9,418</u>
OHCG4	Old range food service area on floor	A STREET	<u>269</u>	OHCG8	Old range vault area on floor		163

Table 2. Chagrin Falls IFR Surface Wipe Sampling Results for Lead (September 2014).

Figure 1. Chagrin Falls Armory Floor Plan with Sampling Locations (January 2015).



Page 4 of 5

Figure 2. Chagrin Falls IFR Supply Room Floor Plan with Sampling Locations (January 2015).

Page 5 of 5

BEST AVAILABLE COPY Dover Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Dover Armory	2800 N. Wooster Ave., Dover, OH 44622
Date:	IH:	POC:
1/9/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. No results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft² and two sample results were above 40 μ g/ft² where children may be present (drill hall). There was also some measureable lead contamination in the kitchen area.

Recommendations:

- 1. Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 40 μg/ft² in the drill hall.
- 2. Increase housekeeping in the kitchen area.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHDV -W20	Ventilation grille on South end of drill floor		<u>106</u>	OHDV -W26	Kitchen table by coffee machine		95
OHDV -W25	Janitorial Room floor		163				

Table 1. Dover Armory Surface Wipe Sampling Results for Lead (January 2015).

Page 1 of 2

Table 2.	Dover Ari	mory Surface	Wipe Sam	pling Results	for Lead	(September	2014).
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Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHDV7	Drill hall on vending machine (12 x 12)		<u>81</u>	OHDV8	Kitchen on warming rack (12 x 12)	CTATER	13

Figure 1. Dover Armory Floor Plan with Sampling Locations (January 2015).



Page **2** of **2**
BEST AVAILABLE COPY Dover IFR - Surface Lead Sampling Report

State:	Facility:	Address:				
OH	IFR - Dover	2800 N. Wooster Ave., Dover, OH 44622				
Date:	IH:	POC:				
1/9/2015	Non-Responsive	Non-Responsive				

Facility Description: Range converted to a storage area and garage. **Frequency of Use:** Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings		
Clean <200 µg/ft ²	7	8		
Moderate <1K μg/ft ²		5 (exhaust fan, shelves, floor)		
High >1K μg/ft ²		2 (flammable cabinet, floor)		
Very High >10K µg/ft ²				
Gross > 100K µg/ft ²				
Total Number of Results >200 μg/ft ²	0/7	7/15		
Summary	 Contents: 7 samples clean. Structures/Furnishings: 7/15 of the results showed moderate high lead contamination levels. Exhaust fan shows moderate contamination. 			

Recommendations:

1-ac

2-a

Table 1.	Dover	IFR Su	face Wipe	e Sampling	Results	for Lead	(January	/ 2015).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHDV- W10	Back of chairs on cart		<91	OHDV- W18	#5 Pen – top of larger wooden shelf		<u>322</u>
OHDV- W11	Hood of John Deer tractor		<91	OHDV- W19	#5 Pen – top of metal cabinet	B	123
OHDV- W12	Top of MSDS cabinet	MSDS MFORMATION CENTER	190	OHDV- W21	TV shelf in GR Backstop Room		159
OHDV- W13	Top of red box with white top against wall		133	OHDV- W22	Backstop Room training material		<91
OHDV- W14	Top of storage unit used for fuels and oils		92	OHDV- W23	Backstop Room training material		<91
OHDV- W15	#1 Pen – lawn care equipment shelf		<u>226</u>	OHDV- W24	Exhaust fan in room above backstop	No photo available	<u>489</u>
OHDV- W16	#3 Pen – top of utensil holder		<91	OHDV- W27	Pen #2 – metal shelf		108
OHDV- W17	#3 Pen – top of food server		<91	OHDV- W28	Pen #2 – metal shelf		<u>242</u>

Page 2 of 4

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHDV1	Old range garage side on flammable storage cabinet		<u>2,710</u>	OHDV4	Old range kitchen supply cage on floor		<u>1,232</u>
OHDV2	Old range mechanical cage on shelf		<91	OHDV5	Old range cage near backstop on locker		<91
OHDV3	Old range kitchen supply cage on silverware rack	lmage unavailable	<91	OHDV6	Old range backstop area on floor		<u>220</u>

Table 2	Dover IFR Sur	face Wine Samr	oling Results for L	ead (September 2014)
		add mpd damp		

Page **3** of **4**





Page 4 of 4

BEST AVAILABLE COPY DSCC Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	DSCC Armory	3990 East Broad St., Columbus, OH 43235
Date:	IH:	POC:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: The armory is not available for public use. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. There are moderate to high lead levels in the cage storage area within this armory including the ventilation duct interior.

Recommendations:

- 1. Recommend the use of a qualified and licensed remediation contractor experienced in lead dust abatement to clean the cage storage area including the ventilation system.
- 2. Continue housekeeping efforts in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHDC13	Medical storage room off mess, on top of box		<91	OHDC16	Treatment squad 2 cage on boxes		<91
OHDC14	Kitchen on ice machine		<91	OHDC17	Food operations cage on hand washing station	Мтсы	<91
OHDC15	Treatment squad 1 cage on boxes		<91	OHDC18	Supply cage on floor		<u>2,788</u>

Table 1. DSCC Armory Surface Wipe Sampling Results for Lead (January 2015).

Page **1** of **3**

BEST AVAILABLE COPY DSCC Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHDC19	Treatment headquarters cage on box		<91	OHDC22	Maintenance office on top of cabinet		<91
OHDC20	Area support treatment cage on boxes		<91	OHDC23	Cage room inside duct work from maintenance area.		<u>5,382</u>
OHDC21	Training cage on floor		<91			<u>.</u>	I

Table 2. DSCC Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHDC 5	Maintenance office in drop ceiling	Image unavailable	<91	OHDC 9	Medical storage cage in old range backstop access panel		99
OHDC 6	Medical supply cage on floor at end of aisle	a de la constante de la consta	<u>289</u>	OHDC 10	On duct in medical storage cage area		<u>6,473</u>
OHDC 7	Server room in 684 th hallway on electrical box		<91	OHDC 11	On vending machine in drill hall (12 x 12)		<10

Page 2 of 3





BEST AVAILABLE COPY DSCC IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR - DSCC	3990 East Broad St., Columbus, OH 43235
Date:	IH:	POC:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to a storage area and mess hall. (Supply cages are outside of the former IFR).

Frequency of Use: Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Figure 1 is a floor plan showing the 2015 sampling locations. Figure 2 shows HVAC details for the IFR area.

Lead	Contents	Structures & Furnishings
Clean <200 µg/ft ²		3 (inside mess hall duct clean)
Moderate <1K μg/ft ²		2 (on top of mess hall duct, electrical box)
High >1K μg/ft²		1 (floor)
Very High >10K µg/ft ²		
Gross > 100K µg/ft ²		
Total Number of Results >200 μg/ft ²		3/6
Summary	 No content samples (minimal contents). Structures/Furnishings: 3/6 results showed moderate to high lead contamination levels. Inside mess hall duct clean; on top of duct moderately contaminated. Active food serving area. 	

Recommendations:

1-ac

2-a

Consider relocating the mess hall to another location.

BEST AVAILABLE COPY DSCC IFR - Surface Lead Sampling Report

Table 1. DSCC IFR Surface Wipe Sampling Results for Lead (January 2015).

Sample #	Location	Photo	Lead (µg/ft ²)
OHDC24	Mess hall inside duct		<91

Table 2. DSCC IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft ²)
OHDC1	Old range now mess hall on duct above far end	Image unavailable	<u>258</u>
OHDC2	Old range backstop area now boiler room on floor		<u>1,142</u>
OHDC3	Old range backstop area now boiler room on air exchange box		139
OHDC4	Old range now mess hall on floor in entry way	NICOLO	<91
OHDC8	Storage area in old range intake wall area on electrical box		<u>314</u>

Page 2 of 4





Page 3 of 4





Page 4 of 4

Green Road IFR – Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR - Green Road	4303 Green Rd., Cleveland, OH 44128
Date:	IH:	POCs:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to an exercise room, maintenance shop, and storage area. **Frequency of Use:** Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings	
Clean <200 μg/ft ²		3	
Moderate <1K µg/ft ²		1 (floor)	
High >1K μg/ft²			
Very High >10K µg/ft ²			
Gross > 100K μg/ft ²		1 (pit floor)	
Total Number of Results >200 μg/ft ²		2/5	
Summary	 Contents: no samples. Structures/Furnishings: 2/5 of results showed moderate to gross lead contamination levels on the floor. Soundproofing material may be present. 		

Recommendations:

1-b

2-bd

There is some white wall board with perforations on walls. If this is original sound proofing material it should be removed IAW NG Pam 420-15. The weight room floor shows moderate contamination and should be cleaned before use. Additional sampling is required to further characterize this space.

Table 1.	Green Road IFR	Surface Wipe	Sampling	Results for Lead	January 201	5).
						- / -

Sample #	Location	Photo	Lead Result (µg/ft²)
OHGN-24	Desk – Maintenance Shop – Front end of range		<91

Table 2. Green Road IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGN1	Old Range – weight room floor		<u>334</u>
OHGN4	Old Range – flammable storage cabinet, firing line area		<91
OHGN5	Old Range – floor under desk, firing line area		156
OHGN6	New Bathroom – closet on floor, behind backstop area		<91
OHGN7	Floor in Pit - inside hole into backstop area		<u>195,000</u>

Page 2 of 3



Figure 1. Green Road Armory Floor Plan with Sampling Locations (January 2015).

Green Road Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Green Road Armory	4303 Green Rd., Cleveland, OH 44128
Date:	IH:	POCs:
1/8/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. In the drill hall, there was one sample result above 200 μ g/ft² on the floor fan and two results above 40 μ g/ft². The goal for the drill hall is 40 μ g/ft² since children may be present.

Recommendations:

1. Increase housekeeping efforts in the the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 40 μ g/ft² for the drill hall.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGR- W9	Back of folding chair on drill floor		<91	OHGR- W12	Top of table cart		<91
OHGR- W10	Folding tables on drill floor		<91	OHGR- W13	Scale		<91
OHGR- W11	Floor fan – grille		<u>152</u>	OHGR- W14	Black pallets		<91

Table 1. Green Road Armory Surface Wipe Sampling Results for Lead (January 2015).

Page **1** of **3**

BEST AVAILABLE COPY Green Road Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGR- W15	Metal cabinet	HARDEN DE LA COMPANYA	<91	OHGR- W20	Top – portable podium		<91
OHGR- W16	Flammable storage cabinet		<91	OHGR- W21	Rubber floor mat on drill floor		<91
OHGR- W17	Weights in PT Room	No Picture	<91	OHGR-	Microwave		-01
OHGR-				W23	on drill floor		~91
W18	Wooden box		<91	OHGN-	Desk – Maintenance		<91
OHGR-	Big floor fan		224	24	Snop – Front end of range		
W19			<u> </u>				

Table 2. Green Road Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGN 2	Drill hall on vending machine (12 x12)		<u>82</u>	OHGN 3	Kitchen on oven (12 x12)		<10

Page 2 of 3

Green Road Armory – Surface Lead Sampling Report





Page 3 of 3

BEST AVAILABLE COPY Greenville Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Greenville Armory	1434 Wagner Ave,. Greenville, OH 45331
Date:	IH:	POC:
1/6/15	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. Two surface wipe sample results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft². The results were for samples from the floor in the stairwell to old range and the top of vending machine in the drill hall. The goal for the drill floor is 40 μ g/ft² since children may be present in this area.

Recommendations:

1. Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μ g/ft² for the stairwell to the old range and below 40 μ g/ft² for the drill hall.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGV1	Classroom on top of desk		<91	OHGV8	Kitchen on cabinet above coffee maker		<91
OHGV2	Classroom 2 on desk cabinet		<91	OHGV9	Recruiting office on floor		<91

Table 1. Greenville Armory Surface Wipe Sampling Results for Lead (January 2015).

Page **1** of **3**

BEST AVAILABLE COPY Greenville Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHGV10	First office on right side of hall from entrance		<91	OHGV13	Boiler room on hot water heater		140
OHGV11	Supply room cleaning supply shelf		<91	OHGV14	Command- ers office on computer servers		<91
OHGV12	Main classroom on information stand		<91				

Table 2. Greenville Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHGV3	Stairwell to old range on floor		<u>325</u>	OHGV4	Drill hall on vending machine		<u>907</u>

Figure 1. Greenville Armory Floor Plan with Sampling Locations (January 2015).

Page **3** of **3**

Greenville IFR – Surface Lead Sampling Report

State:	Facility:	Address:			
OH	IFR - Greenville	1434 Wagner Ave,. Greenville, OH 45331			
Date:	IH:	POC:			
1/6/15	Non-Responsive	Non-Responsive			
Facility Description: Range converted to garage area with office					

Facility Description: Range converted to garage area with office **Frequency of Use:** Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Table 1. Figure 1 is a floor plan of the armory.

Lead	Contents	Structures & Furnishings		
Clean <200 µg/ft ²				
Moderate <1K µg/ft ²		2 (cabinet, floor)		
High >1K μg/ft ²				
Very High >10K µg/ft ²				
Gross > 100K μg/ft ²		1 (I-beam)		
Total Number of Results >200 μg/ft ²		3/3		
Summary	 No content samples (minimal contents). Structures/Furnishings: all results showed moderate to gross lead contamination levels. 			

Recommendations:

1-a

2-b

Page 1 of 3

Table 1.	Greenville	IFR S	Surface	Wipe	Sampling	Results	for Lead	(September	2014).
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Sample #	Location	Photo	Lead (µg/ft ²)
	Surface Guideline		200
OHGV1	Old range backstop area now garage office on I-beam		<u>1,083,182</u>
OHGV2	Old range now garage area on flammable storage cabinet		<u>686</u>
OHGV3	Stairwell to old range on floor		<u>325</u>

Figure 1. Greenville Armory Floor Plan.

Page **3** of **3**

BEST AVAILABLE COPY Hamilton Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Hamilton Armory	3000 Symmes Rd., Hamilton, OH 45015
Date:	IH:	POC:
1/6/2015	Non-Responsive	Non-Responsive

Facility Description: The armory is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result was just above the NG Pam 420-15 guideline of 200 μ g/ft².

Recommendations:

1. Continue housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHHM 22	Drill hall on floor between kitchen and supply room		<91	OHHM 25	Supply room 28 on office filing cabinet		<91
ОННМ 23	Supply room 25 in office area on desk cabinet		<91	OHHM 26	Supply room 28 on top of vault		175
OHHM 24	Supply room 25 on top of vault	2	180	OHHM 27	Boiler room on top of unit.		124

Table 1. Hamilton Armory Surface Wipe Sampling Results for Lead (January 2015).

Page **1** of **3**

BEST AVAILABLE COPY Hamilton Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHHM 28	HHT 2- 107th office on shelf under ventilation.		109	ОННМ 29	B Company RSP office back desk on cabinet		<91

Table 2. Hamilton Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)
OHHM5	Drill hall on vending machine		<u>203</u>

Figure 1. Hamilton Armory Floor Plan with Sampling Locations (January 2015).

Page **3** of **3**

BEST AVAILABLE COPY Hamilton IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR – Hamilton	3000 Symmes Rd., Hamilton, OH 45015
Date:	IH:	POC:
1/6/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted into supply cages and storage area (food service). **Frequency of Use:** Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings			
Clean <200 μg/ft ²	9	4			
Moderate <1K μg/ft ²		3 (shelves)			
High >1K μg/ft²		2 (floor, backstop)			
Very High >10K µg/ft ²		1 (heater)			
Gross > 100K µg/ft ²					
Total Number of Results >200 μg/ft ²	0/9	6/10			
Summary	 Contents: 9 samples clean. Structures/Furnishings: 60% of the results showed moderate to very high lead contamination levels. Metal backstop is present. 				

Recommendations:

1-ac

2-bd

The metal backstop should be removed and disposed IAW NG Pam 420-15.

Page 1 of 4

Table 1.	Hamilton IF	R Surface	Wipe	Sampling	Results	for Lead	(January	/ 2015).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
ОННМ9	Old range 2nd cage on footlocker back left		<91	OHHM16	Old range cage 5 on radio rack, back right shelf		147
ОННМ10	Old range in 2nd cage on tent bag.		<91	OHHM17	Medic cage on tent left side.		<91
ОННМ11	Old range 3rd cage on foot locker, right shelf.		<91	OHHM18	Medical cage on box right side.		<91
OHHM12	Old range 3rd cage on shelf, center rear.		<u>821</u>	ОННМ19	Old range cage 6 on small filing cabinet		<91
OHHM13	Old range cage 4 on right shelf		146	ОННМ20	Backstop cage on shelf of medical supplies		110
OHHM14	Cage 4 on footlocker, right side.		<91	OHHM21	Old range cage 1, on tool box.		196
OHHM15	Old range cage 5 on shelf		<u>307</u>				

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHHM1	Old range backstop pit on floor		<u>2,103</u>	OHHM4	Old range supply "first" cage on heater		<u>37,659</u>
OHHM2	Old range backstop area on locker		135	ОННМ6	Old range behind backstop, on backstop		<u>1,038</u>
ОННМЗ	Old range supply cage on shelf		<u>368</u>	OHHM7	Back side of backstop on shelf upstairs		<91

Table 2. Hamilton IFR Surface Wipe Sampling Results for Lead (September 2014).

Page **3** of **4**

Figure 1. Hamilton Armory Floor Plan With Sample Locations (January 2015).

Page 4 of 4

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National Guard Bureau Mid-West Regional Industrial Hygiene Office 301-IH Old Bay Lane Havre de Grace, MD 21078

ARNG-CSG-P

April 28, 2015

MEMORANDUM FOR: The Adjutant General for Ohio

SUBJECT: Industrial Hygiene Report for Surface Lead Sampling at Armories with Former Indoor Firing Ranges.

Introduction and Scope

A total of 25 armories with repurposed indoor firing ranges (IFRs) were evaluated by the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office. The focus of this sampling effort was to conduct a baseline surface lead dust survey of the former IFR structures and to determine the lead contamination status of the contents within this area. Sampling results for armory spaces outside the ranges are also covered in this report.

Criteria

The NGB IH Office has adopted the sampling procedures and limits for lead dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*, November 3, 2006. Any surface lead results that exceed 200 micrograms per square foot (µg/ft²) in work areas are considered significant. In addition, for armories with public access, surface lead levels exceeding 40 µg/ft² are considered significant in areas where children may be present (e.g., drill hall). NG Pam 420-15 may be found at: http://www.ngbpdc.ngb.army.mil/pubs/420/ngpam420_15.pdf.

NG Pam 420-15, Section 3-6, *Conversion of Indoor Firing Ranges*, requires removal of backstops/bullet traps and acoustical tiles/sound proofing. Ventilation components (ducts, exhaust fans, grilles) and light fixtures must be removed or decontaminated. Baffles are not specifically addressed in Section 3-6; NGB IH recommends removal or decontamination. Encapsulation is also an option for ventilation components, baffles, and other items such as angle iron and piping after these items are thoroughly cleaned, but be aware that this method carries some future risk of re-contamination if the encapsulation is damaged. NOTE: It is the State's responsibility to inventory and address all old range components. The NGB IH surveys assist by noting some of the old range components, but the list is not comprehensive.

Sampling Description

Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. Every attempt was made to collect samples IAW NG Pam 420-15, Section 1-4c. Wipe samples were collected using Environmental Express Ghost Wipes and templates IAW the OSHA wipe sampling method (OSHA Technical Manual, TED 01-00-015). The samples were analyzed for lead by OSHA Method ID-121.

Findings for Former IFRs

Samples from the structural components in the former IFRs collected in September 2014 showed that surface lead contamination was present at all sites. In January 2015, additional samples of the structure, contents, furnishings, and adjacent areas were collected to further characterize the armories. A summary of recommendations based on the findings is included in Table 1: *Recommended Actions for Content Retrieval and Cleaning/Renovation of Former IFRs*. The recommended actions are described in Table 2: *Action Descriptions for Former IFRs*.

Example: For Alliance Armory, the Table 1 recommendation for retrieval of <u>contents</u> is Action 1-b and the recommendations for cleaning and renovation of the <u>structure</u> is Action 2-b. Go to Table 2 for a description of 1-b and 2-b actions.

Table 1 also notes the area usage and frequency of use as provided by OHARNG Facility Maintenance to assist management personnel in prioritizing work. Appendix A includes the surface lead sampling reports for each former IFR. Site-specific recommendations, additional comments, and floor plans are provided for each former IFR.

Lebanon, Middletown, and Sandusky armories used the drill floor as part of the former firing range. The firing line was on one side of the drill floor and the bullet trap was contained in an alcove at the opposite side. Acoustical material on the drill hall ceiling/roof deck was not sampled; if the ceiling or other elevated components including the roof must be disturbed for renovation or repair work, contact the OHARNG Occupational Health Nurse for additional sampling and instruction.

Findings for Armory Areas Outside of the Former IFRs

For 18 of the armories, the spaces outside the former IFRs had no to moderate surface lead contamination levels and may be addressed with housekeeping procedures. Seven armories noted in Table 1 with an asterisk (*) have lead levels above 1,000 μ g/ft² in areas outside of the former IFRs. Professional cleaning is recommended for these armories based on the high contamination levels and/or locations (e.g., elevated areas). Cleaning in areas of the facility outside of the former IFRs may be included with the IFR cleaning statement of work as applicable. Lead contamination found in kitchen areas and in drill halls available to the public with results above 40 μ g/ft² are also noted in the individual surface lead sampling reports for areas outside the IFRs (Appendix B).

OHARNG Clean-up SOP and Analytical Laboratory Reports

Appendix C includes the OHARNG Occupational Health Office Guide to Cleaning Up Lead Dust on Equipment/Area. The Federal Occupational Health (FOH) Environmental Laboratory project numbers for each location are tabulated in Appendix D and the FOH analytical laboratory reports are on file in the OHARNG Occupational Health Office.

General Recommendations

 The best use of the former IFRs is as storage. Avoid using the former range areas to prepare, store, or serve food. Relocate food preparation equipment stored in ranges to an alternate location if possible. If kitchen equipment must be stored in old range spaces, ensure any current food service items are thoroughly cleaned before use; dispose of any unwrapped serving items (e.g., paper products, plastic utensils, etc.). Use of former ranges as exercise rooms is not optimal; however, the areas may be used as exercise rooms if the ranges are properly converted and housekeeping is diligent. Use of former ranges for fulltime office space is not recommended.

- 2. Once items are cleaned and removed from the former ranges, store them in a clean location. Do not place clean items back in the old ranges. The goal is to clean and remove items from the old range areas. This is to prevent further contamination of contents and will allow the spaces to be more easily remediated.
- Ensure the IFR remediation contract specifies the methods in NG Pam 420-15 and OSHA 1926.62 to include the use of proper personal protective equipment (PPE), negative pressure containment, personal air monitoring for remediation workers, and successful clearance wipe sampling.
- 4. Ensure removal of any structural components is done safety; verify any load bearing components before work begins.
- 5. Coordinate with the OHARNG Environmental Office for disposal of construction debris, sponges, mops, filters, disposable rags, grey water, and other cleaning materials.
- Recommend the use of disposable respirators such as the 3M Model 8293 P100 particulate respirator (or equivalent) and implementation of medical qualification, qualitative fit testing, and training.
- 7. Housekeeping in the areas outside the IFRs should be conducted using high efficiency particulate air (HEPA) filter vacuums and/or wet methods on a schedule that maintains surface lead levels at less than 200 µg/ft² (40 µg/ft² for potentially child occupied areas). Surface lead levels in kitchens should be as low as possible.

The NGB IH staff conducted this survey in the interest of preventing employee illness and to meet legal obligations where applicable. Results and recommendations are based on information provided by site personnel, field measurements, and conditions observed during the survey. Any change in processes, work practices, or materials requires additional evaluation. For any further questions, please contact your regional IH representative, Non-Responsive, at Non-Responsive

Von-Responsive

Non-Responsive

Regional Industrial Hygienist

- Appendix A. Surface Lead Sampling Reports IFRs.
- Appendix B. Surface Lead Sampling Reports Armory Areas Outside of the IFRs.
- Appendix C. OHARNG Occupational Health Office Guide to Cleaning Up Lead Dust on Equipment/Area.
- Appendix D. Analytical Laboratory Report Project Numbers.

Table 1.	Recommended	Actions for	Content	Retrieval	and C	Cleaning/Re	enovation c	of Former	IFRs*.
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	Action 1 for	Action 2 for		Frequency	
Armory	Contents	Structure	Area Usage	of Use	
	(see Table 2)	(see Table 2)	Eventing an and a second second		
Alliance**	b	b	equipment	monthly (civilian and M-Day)	
Beightler	ac	а	Exercise room and storage area	Daily	
Brook Park	bc	bd	Supply cages and storage area (food service)	Weekly	
Chagrin Falls	ac	bd	Exercise room, supply cages and storage area (CBRN, food service, and medical storage)	Daily	
Dover	ac	а	Storage area and garage	Daily	
DSCC** (Bldg 24)	ac	а	Storage area and mess hall; storage cages are outside of the old IFR	Weekly	
Green Road	b	bd	Exercise room and storage area	Weekly	
Greenville	а	b	Garage and office	Daily	
Hamilton	ac	bd	Supply cages and storage area (food service)	Weekly	
Kettering**	N/A	bc	Supply cages and storage area	Weekly and IDT	
Lebanon**	b	b	Storage area and CBRN room	Weekly	
Lorain	b	bd	Supply cages and storage area	Weekly	
Middletown	b	bd	Storage area and display case	Monthly	
Newark	ac	bd	Storage area (S3 office, supply cages, server room, and weight room)	Daily	
North Canton	ac	b	FTUS SNCO office, supply cages and storage area (HRF gear)	Daily	
Norwalk	b	bd	Platoon cages (4) and storage area	Weekly	
Sandusky	а	а	Storage area and garage	Weekly	
Springfield	ac	bc	Kitchen and mess hall	Monthly during drill (dining facility)	
St. Mary's**	N/A	b	Space unused	None	
Stow	b	bc	Exercise room, FM storage for consumables and equipment, Ohio CAP office	Daily (FTUS) and monthly (CAP)	
Sullivant	b	bd	Storage area (basement) and Ohio Militia office	Monthly use IAW OHMR drill schedule	
Tiffin**	а	bc	Platoon office, platoon cages (4), and storage area	Weekly	
Walbridge	bc	bd	Storage area	Weekly	
Wooster	ac	а	Exercise room, supply cages and storage area (CBRN, food service, and medical storage)	Weekly	
Youngstown/ Austintown**	b	b	Supply cages and storage area	Weekly (FTUS) and monthly (IDT)	

* See Appendices A and B for individual surface lead sampling reports for each location. ** Armory has surface lead contamination levels above 1,000 μ g/ft² outside of the former IFR.

Table 2. Action Descriptions for Former IFRs.

ACTION 1. CONTENTS

- a) Contents were minimal, none of the results for contents stored in this range showed lead contamination above the guideline of 200 µg/ft² or contamination of items was localized and moderate (<1,000 µg/ft²). The IFR structure has limited contamination. Items may be retrieved using the following guidelines.
 - If items are visibly dusty, wipe item down with soapy water. Wet wipe or HEPA filter vacuum items prior to removal of equipment. DO NOT GENERATE AIRBORNE DUST WHILE CLEANING AND MOVING ITEMS.
 - PPE: Within the old range, use paper booties to cover boots or have the ability to wipe off foot wear so lead dust is not spread throughout armory. Use gloves as needed.
 - iii) Do not eat/drink in the old range and ensure personnel wash hands before eating/smoking, etc.
- b) Some results for contents stored in this range showed lead contamination above the guideline of 200 µg/ft² or there was an inadequate number of samples to make a determination. The IFR structure has more wide-spread contamination. Items stored in the range may be retrieved following NG Pam 420-15, Section 3-3, *Cleaning Stored Contaminated Equipment* and OHARNG Occupational Health Office Guide to Cleaning Up Lead Dust on Equipment/ Area.
- c) Ensure any food service items are thoroughly cleaned before use; dispose of any unwrapped serving items. Consider storing food related items in an alternate location until remediation is completed.

ACTION 2. STRUCTURE

- a) Due to the levels and limited extent of the lead contamination, this area may be cleaned in house following OHARNG Occupational Health Office Guide to Cleaning Up Lead Dust on Equipment/Area. Another option is to secure a qualified and licensed range remediation contractor experienced in lead dust abatement to clean and complete the conversion of the area including removing/ encapsulating any original range components following NG Pam 420-15.
- b) Due to the high levels, locations, and/or extent of the lead contamination, secure a qualified and licensed range remediation contractor experienced in lead dust abatement to clean and complete the conversion of the area including removing/encapsulating any original range components following NG Pam 420-15.
- c) Any active HVAC systems that are internally contaminated with lead must be cleaned by a qualified HVAC contractor experienced in remediating lead contaminated systems or the system must be replaced. Any active ventilation systems supporting or passing through former IFR spaces are suspect for lead contamination and may also need addressed.
- d) The former IFR contains a backstop/bullet trap and/or acoustical tiles/sound proofing. These items must be removed IAW NG Pam 420-15, Section 3-6, *Conversion of Indoor Firing Ranges.* NOTE: It is the State's responsibility to inventory and address all old range components. The individual IH survey reports for each location assist by noting some of the old range components, but the list is not comprehensive. Ensure removal of any structural components is done safety; verify any load bearing components before work begins.

BEST AVAILABLE COPY Kettering Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Kettering Armory	2555 County Line Rd., Kettering, OH 45430
Date:	IH:	POC:
1/7/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Table 1 contains the sampling results. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. The old indoor firing range has been cleaned professionally, but requires additional cleaning and renovation to include the HVAC system. Elevated horizontal surfaces of the adjacent FMS are also impacted due to a shared wall that is not sealed at the top.

Recommendations:

- For the old firing range, use of a qualified and licensed range remediation contractor experienced in lead dust abatement was recommended to clean and complete the conversion of the area IAW NG Pam 420-15. Recommend adding the cleaning of the elevated surfaces in the adjacent FMS and the armory HVAC systems in the firing range statement of work.
- 2. Increase housekeeping efforts in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods.

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
1-OH- Kett	Drill floor on top of vending machine	Not available	<91	5-OH- Kett	FMS top of duct	Not available	<u>549</u>
2-OH- Kett	Drill floor on exhaust grill above vending machine	Not available	<u>286</u>	6-OH- Kett	FMS top of I-beam	Not available	<u>63,250</u>

Table 1. Kettering Armory Surface Wipe Sampling Results for Lead (January 2015).
BEST AVAILABLE COPY Kettering IFR - Surface Lead Sampling Report

State:	Facility:	Address:					
OH	IFR – Kettering	2555 County Line Rd., Kettering, OH 45430					
Date:	IH:	POC:					
1/7/2015	Non-Responsive	Non-Responsive					
Facility Description: Range converted into a cage storage area/garage							

Facility Description: Range converted into a cage storage area/garage. Frequency of Use: Weekly and IDT.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings		
Clean <200 μg/ft ²				
Moderate <1K μg/ft ²		3 (mech room inside AHU on blower side, on HVAC duct, floor)		
High >1K μg/ft ²		5 (mech room inside AHU filter box, on HVAC duct, deflectors, floor)		
Very High >10K μg/ft ²		2 (deflectors)		
Gross > 100K µg/ft ²		1 (intake duct interior)		
Total Number of Results >200 μg/ft ²		11/11		
Summary	 Contents: no additional samples. Items were removed and area is currently used as a garage. Structures/Furnishings: all results show moderate to gross lead contamination levels. High to gross contaminated found on and inside ventilation system that runs through the old range. Deflectors, range intake duct, and light fixtures are contaminated. 			

Recommendations:

1-N/A

2-bc

The range has been cleaned professionally, but requires additional cleaning and renovation. Elevated horizontal surfaces of the adjacent FMS are also impacted due to a shared wall that is not sealed at the top.

Page 1 of 3

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
ОНКТ9	Inside old range intake duct.		<u>178,455</u>	OHKT12	Old range under 3rd bullet deflector on floor		<u>11.023</u>
OHKT10	Old range 3rd bullet deflector		<u>1.609</u>	3-OH-Kett	Mechanical /boiler room inside AHU on blower side	No photo available	<u>708</u>
OHKT11	Old range on top of air duct on far end	1	<u>351</u>	4-OH-Kett	Mechanical /boiler room inside AHU bottom of filter box	No photo available	<u>2,993</u>

 Table 1. Surface Wipe Sampling Results for Lead (January 2015).

Table 2. Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft²)	Sample #	Location	Photo	Lead (µg/ft²)
OHKT1	Old range, back left cage on floor		<u>506</u>	OHKT4	Old range, back cage on air duct		<u>5,927</u>
OHKT2	Old range on bullet deflector at start of cages		<u>2,177</u>	ОНКТ5	Old range, back cage on top of last bullet deflector		<u>46,818</u>
ОНКТ3	Old range, third cage on right in back right corner (floor)		<u>1.739</u>				

Figure 2. Kettering Armory Floor Plan with Sample Locations (January 2015).



Lebanon Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Lebanon Armory	113 East Taylor St., Lebanon, OH 45036
Date:	IH:	POC:
1/5/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. Two surface wipe sample results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft². There was a high lead result on an elevated surface in the kitchen storage area on an I-beam and a moderate lead result in the vault area on a cabinet. In addition, two sample results were above 40 μ g/ft² where children may be present (drill hall).

Recommendations:

- For the old firing range, use of a qualified and licensed range remediation contractor experienced in lead dust abatement was recommended to clean and complete the conversion of the area IAW NG Pam 420-15. Recommend adding the cleaning of the elevated areas in the kitchen storage area in firing range statement of work.
- 2. Increase housekeeping efforts in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μ g/ft² in the vault area and 40 μ g/ft² in the drill hall.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHLB19	Kitchen storage area on beam next to light		<u>8,623</u>	OHLB21	Kitchen on top of fridge		<91
OHLB20	Kitchen storage area on food warmer.		<91	OHLB22	Supply room desk		<91

Table 1. Lebanon Armory Surface Wipe Sampling Results for Lead (January 2015).

BEST AVAILABLE COPY Lebanon Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHLB23	Vault on cabinet in back corner		<u>452</u>	OHLB25	Work out room upstairs on equipment		192
OHLB24	Desk in readiness NCO office		<91				

Table 2. Lebanon Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHLB4	Drill hall on wall above old range	A REPORT	<91	OHLB7	Kitchen on microwave (12 x 12)		<10
OHLB5	Drill hall floor next to kitchen	AT BREE	<91	OHLB8	Drill hall under recruitment station (12 x 12)		<u>48</u>
OHLB6	Drill hall on electrical box	O DANGER	<u>114</u>	OHLB9	Drill hall by entry way on floor (12 x 12)		<10

Page 2 of 3

Figure 1. Lebanon Armory Floor Plan with Sampling Locations (January 2015).

Page **3** of **3**

BEST AVAILABLE COPY Lebanon IFR –Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR – Lebanon	113 East Taylor St., Lebanon, OH 45036
Date:	IH:	POC:
1/5/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to a storage area and CBRN room. Drill floor was part of former IFR.

Frequency of Use: Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings			
Clean <200 µg/ft ²	2	1			
Moderate <1K µg/ft ²		3 (shelf, cabinet, floor)			
High >1K μg/ft ²		2 (shelf, cabinet)			
Very High >10K µg/ft ²					
Gross > 100K µg/ft ²		2 (I-beam)			
Total Number of Results >200 μg/ft ²	0/2	7/8			
Summary	 Contents: 2 samples clean. Structures/Furnishings: 7/8 results showed moderate to gross lead contamination levels. I-beams grossly contaminated. 				

Recommendations:

1-b

2-b

Additional sampling is required to further characterize this space.

Page 1 of 3

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHLB12	NBC room on light fixture above door way.		<91	OHLB16	NBC room on beam above light		<u>324,182</u>
OHLB13	NBC room on box on lower shelf		<91	OHLB17	NBC room on beam between lights.		<u>303,091</u>
OHLB14	NBC room on top shelf by black cases.		<u>1,233</u>	OHLB18	NBC room on cabinet		<u>513</u>
OHLB15	NBC room on black cases on top shelf.		121				

Table 1. Lebanon IFR Surface Wipe Sampling Results for Lead (January 2015).

Table 2. Lebanon IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHLB1	Old range backstop NBC room on floor in back right		<u>911</u>	OHLB3	Old range backstop area NBC room on shelf		<u>479</u>
OHLB2	Old range backstop area NBC room on cabinet	a British	<u>1.023</u>				

Figure 1. Lebanon Armory Floor Plan with Sample Locations (January 2015).

Page **3** of **3**

BEST AVAILABLE COPY Lorain Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Lorain Armory	3520 Grove Ave., Lorain, OH 44055
Date:	IH:	POCs:
1/7/2015	Non-Responsive	Non-Responsive

Facility Description: The armory is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result was above the NG Pam 420-15 guideline of 200 μ g/ft².

Recommendations:

 Increase housekeeping efforts in the supply cage storage area and continue cleaning procedures in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μg/ft².

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHLN –W16	Supply Cage – desk		<91	OHLN –W19	RNCO Office – mouse pad		<91
OHLN –W17	Supply Cage – storage box		<u>405</u>	OHLN –W20	Printer/CO/ XO – top of back shelf		<91
OHLN –W18	1 st SG Office – window sill		<91	OHLN –W21	Orderly Room – top of file cabinet		<91

Table 1. Lorain Armory Surface Wipe Sampling Results for Lead (January 2015).

Page 1 of 3

BEST AVAILABLE COPY Lorain Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	San #	nple ¢	Location	Photo	Lead Result (µg/ft²)
OHLN -W22	RNCO Office – Books	HLV- 22 0	<91	OH –W	LN 27	Class Room – top of cart		97
OHLN –W24	Hallway of Gun Range – storage shelf		<91	OH –W	LN '28	RRNCO Office – top of book shelf		<91
OHLN –W25	Orderly Room – top of shelf above desk		<91	OH –W	LN '29	ANG pamphlet on table outside of Gun Range		<91
OHLN –W26	Kitchen – top of microwave		<91					

Table 2. Lorain Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHLN5	Drill hall by old range on top of wall by firing line side (12 x 12)	B.T.M.	14	OHLN7	Kitchen on warming rack (12 x 12)		16
OHLN6	Drill hall on vending machine (12 x 12)	BUD SH	26				

Page 2 of 3



Figure 1. Lorain Armory Floor Plan with Sampling Locations (January 2015).

Page 3 of 3

BEST AVAILABLE COPY Lorain IFR - Surface Lead Sampling Report

State:	Facility:	Address:				
OH	IFR - Lorain	3520 Grove Ave., Lorain, OH 44055				
Date:	IH:	POCs:				
1/7/2015	Non-Responsive	Non-Responsive				
Facility Description: Range converted to supply cages and storage area. Frequency of Use: Weekly.						

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings			
Clean <200 µg/ft ²	5	4			
Moderate <1K µg/ft ²	2 (chair cart, shop vac)	3 (floor, cabinet, insulation)			
High >1K μg/ft ²		1 (floor)			
Very High >10K µg/ft ²					
Gross > 100K µg/ft ²					
Total Number of Results >200 μg/ft ²	2/7	4/8			
Summary	 Contents: 2/7 samples showed moderate contamination. Structures/Furnishings: half of the results showed moderate to high lead contamination levels. Sound proofing moderately contaminated. 				

Recommendations:

1-b

2-bd

Sound proofing material is present and contaminated; it should be removed IAW NG Pam 420-15.

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHLN – W9	Floor at backstop of Gun Range		<u>337</u>	OHLN – W15	1 st PLT Cage		<91
OHLN – W10	Gun Range- chair cart frame	P	<u>253</u>	OHLN- W23	Gun Range – ShopVac		<u>240</u>
OHLN – W11	Window sill – back of Gun Range		<91	OHLN – W30	Gun Range – table top		<91
OHLN – W12	Medic Cage – top of storage cabinet	OVERHACK	<u>321</u>	OHLN – W31	Storage Room – back of chair		<91
OHLN – W13	3 rd PLT Cage		<91	OHLN – W32	Gun Range – acoustical insulation on wall	OPIN-32	<u>260</u>
OHLN – W14	2 nd PLT Cage	4	<91		<u>.</u>	<u>.</u>	

	-						
Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHLN1	Old range backstop area on floor		<u>8.368</u>	OHLN3	Old range computer desk room on floor		143
OHLN2	Old range second room from pit on locker		126	OHLN4	Old range table storage on floor		112

Page **3** of **4**



Figure 1. Lorain Armory Floor Plan with Sampling Locations (January 2015).

Page 4 of 4

BEST AVAILABLE COPY Middletown Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Middletown Armory	2002 S. Main St., Middletown, OH 45044
Date:	IH:	POC:
1/5/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result for the drill hall piping near the family readiness office was above the NG Pam 420-15 guideline of 200 μ g/ft² and two other drill hall results were above 40 μ g/ft². The goal for the drill floor/family readiness area is 40 μ g/ft² since children may be present in the area.

Recommendations:

 Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 40 µg/ft² for the drill hall and family readiness areas.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHMP 17	Table in front of backstop area		<91	OHMP 19	Supply room on cabinet next to vault		<91
OHMP 18	drill hall on top of vending machine		<91	OHMP 20	Supply room on shelf next to medical kits		<91

Table 1. Middletown Armory Surface Wipe Sampling Results for Lead (January 2015).

Page 1 of 4

BEST AVAILABLE COPY Middletown Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHMP 21	Vault inside supply room 113 on shelf		<91	OHMP 27	Arms room on desk		<91
OHMP 22	Room 114 on desk top (pregnant soldier work area)		<91	OHMP 28	arms room vault on shelf	19 20 RJ	<91
OHMP 23	Room 114 on cabinet		<91	OHMP 29	Drill hall on pipe by family readiness and exit door		<u>460</u>
OHMP 24	Vault inside family readiness on school supplys		<91	OHMP 30	Drill hall on pipe above women's bathroom by kitchen		<u>99</u>
OHMP 25	Family readiness on box of Christmas items		<91	OHMP 31	Recruitment office on desk		<91
OHMP 26	Family readiness on floor		<91				

Table 2.	Middletown /	Armory Surface	e Wipe Samplin	g Results for Lea	d (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHMT5	Drill hall on floor by classroom		<91	OHMT7	kitchen on warming rack		<91
OHMT6	Drill hall on lockers for family readiness		<u>190</u>	OHMT8	Family readiness vault on cabinet	Image unavailable	<91

Page **3** of **4**

Figure 1. Middletown Armory Floor Plan with Sampling Locations (January 2015).

Page 4 of 4

BEST AVAILABLE COPY Middletown IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR – Middletown	2002 S. Main St., Middletown, OH 45044
Date:	IH:	POC:
1/5/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to a display case and storage area. Drill floor was part of former IFR.

Frequency of Use: Monthly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings
Clean <200 μg/ft ²	3	3
Moderate <1K μg/ft ²	2 (red box in case, wood box)	
High >1K μg/ft ²		1 (display case top)
Very High >10K μg/ft ²		1 (floor)
Gross > 100K µg/ft ²		1 (I-beam)
Total Number of Results >200 μg/ft ²	2/5	3/6
Summary	 Contents: 2/5 samples showe Structures/Furnishings: half of lead contamination levels. I-beam is grossly contaminated display case. 	ed moderate contamination. f the results showed high to gross d; backstop is present behind the

Recommendations:

1-b

2-bd

The metal backstop should be removed and disposed IAW NG Pam 420-15.

Page **1** of **3**

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHMP10	Backstop area, display case on shelf.		106	OHMP14	Christmas decorations that were in old backstop area		<91
OHMP11	Backstop area in display case on box		<u>290</u>	OHMP15	On top of display case in old backstop area		<u>4.055</u>
OHMP12	Backstop area in display case on photo album		<91	OHMP16	On helmet in display case in old backstop area	tea ***	122
OHMP13	Backstop area on far end wooden box		<u>227</u>				

Table 1. Middletown IFR Surface Wipe Sampling Results for Lead (January 2015).

Table 2. Middletown IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHMT1	Old range backstop on floor		<u>19,809</u>	ОНМТЗ	Drill hall in front of backstop on floor	Ciluzia -	<91
OHMT2	Old range backstop behind display case		137	OHMT4	Backstop area on I- beam	and a second	<u>1,027,727</u>

Page 2 of 3

Figure 1. Middletown Armory Floor Plan with Sample Locations (January 2015).

Page **3** of **3**

BEST AVAILABLE COPY Newark IFR - Surface Lead Sampling Report

State: OH	Facility: IFR – Newark	Address: 1257 Hollar Lane, Newark, OH 43055
Date:	IH:	POCs:
1/6/2015	Non-Responsive	Non-Responsive
)

Facility Description: Range converted to S3 offices, exercise room, server room, maintenance shop, and supply cages. **Frequency of Use:** Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Table 1. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings
Clean <200 µg/ft ²	9	10
Moderate <1K μg/ft ²		1 (floor under carpet)
High >1K μg/ft²		1 (top of food service cabinet)
Very High >10K µg/ft ²		
Gross > 100K μg/ft²		1 (back of drop in acoustical tile near exhaust fan)
Total Number of Results >200 μg/ft ²	0/9	3/13
Summary	 Contents: 9 samples clean. Structures/Furnishings: 3/13 lead contamination levels. Back of ceiling tile under old ra grossly contaminated; assume contaminated. Sound proofing present. 	results showed moderate to gross ange roof exhaust in office area e roof exhaust louver is also

Recommendations:

1-ac

2-bd

Collect additional samples above ceiling tile to determine extent of contamination. Reconsider using part of the old range as full-time office space. Any construction/ maintenance/installation work above the ceiling level should be reviewed and approved by the OHN.

Page 1 of 4

Table 1.	Newark IFR	Surface Wipe	Sampling Results	for Lead (January 201	15).
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Sample #	Location	Photo	Lead (µg/ft²)	Sample #	Location	Photo	Lead (µg/ft²)
NEW- W1	Old range, Room 124C, offices, old backstop area, on shelf above desk		<91	NEW- W8	Old range, Room 124A, weight room, on Weider weight machine plate, floor level		<91
NEW- W2	Old range, Room 124C, offices, old backstop area, on concrete floor		<91	NEW- W9	Old range, Room 124B, 211 th CBRN cage, on top of metal book shelf		125
NEW- W3	Old range, Room 124C, offices, old backstop area, on painted window sill		<91	NEW- W10	Old range, Room 124B, 211 th CBRN cage, on painted wood file cabinet K		<91
NEW- W4	Old range, Room 124C, offices, old backstop area, on file cabinet near door		<91	NEW- W11	Old range, Room 124B, 211 th CBRN cage, on green pelican case		<91
NEW- W5	Old range, Room 124C, offices, old backstop area, on back of ceiling tile near old roof exhaust, center of room		<u>108.455</u>	NEW- W12	Old range, Room 124B, kitchen equipment storage cage, on stainless steel table lower shelf		<91
NEW- W6	Old range, Room 124A, weight room, on painted window sill		<91	NEW- W13	Old range, Room 124B, kitchen equipment storage cage, on top of metal storage shelf		<u>2,117</u>
NEW- W7	Old range, Room 124A, weight room, under carpet on concrete floor	B1/B/DB2	<u>370</u>	NEW- W14	Old range, Room 124B, kitchen equipment storage cage, on table with water coolers near door		<91

Page 2 of 4

BEST AVAILABLE COPY Newark IFR - Surface Lead Sampling Report

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
NEW- W15	Old range, Room 124A, weight room, on top of chin up bar frame	NEW-WIS	<91	NEW- W20	Old range, Room 124A, weight room, on top of light fixture above ceiling		<91
NEW- W16	Old range, Room 124B, CAP cage, on top of metal storage locker		<91	NEW- W21	Old range, Room 124, maintenance shop, on metal storage shelf		<91
NEW- W17	Old range, Room 124B, CAP cage, inside metal storage locker on bottom shelf		<91	NEW- W22	Old range, Room 124, maintenance shop, on desk		<91
NEW- W18	Old range, Room 124B, CAP cage, on vinyl cover under sleeping mats		<91				
NEW- W19	Old range, Room 124B, CAP cage, on outside packaging for water bottles		<91				



Figure 1. Newark IFR Floor Plan with Sampling Locations (January 2015).

Page 4 of 4

BEST AVAILABLE COPY Newark Armory – Surface Lead Sampling Report

State: OH	Facility: Newark Armory	Address: 1257 Hollar Lane, Newark, OH 43055
Date:	IH:	POCs:
1/6/2015	Non-Responsive	Non-Responsive
		(Maintenance)

Facility Description: The armory is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Table 1 contains the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result for the balance of the armory was above the NG Pam 420-15 guideline of 200 μ g/ft². The sample was on the floor in an office area next to the old firing range.

Recommendations:

1. Increase housekeeping efforts in the remainder of the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μg/ft².

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
NEW- W23	Room 125A/114B, office, on concrete floor near coffee maker		<u>634</u>	NEW- W26	Room 114F, storage room, on top of metal file cabinet		<91
NEW- W24	Room 125A/114B, office, on top of light fixture above ceiling	CIVER?	<91	NEW- W27	Drill floor, on top of microwave oven		<91
NEW- W25	Room 125C, classroom, on floor (12 x 12 VAT)		<91	NEW- W28	Drill floor, on top of trophy cabinet		<91

Table 1	Nowork Armon	/ Surface M/in	na Camplina	Doculto for	Lood (loou	nn/2015
Table L.	INEWARK ATTION		je Samolinu		Leau (Janu)	aiv 2013).

Page 1 of 3

BEST AVAILABLE COPY Newark Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
NEW- W29	Kitchen, on top of paper towel dispenser		<91	NEW- W32	Room 109B, office, on metal file cabinet		<91
NEW- W30	Kitchen, on bottom shelf of warming rack		<91	NEW- W33	Entry way, on wood shelf outside Room 126		<91
NEW- W31	Room 115/116, supply room, on wood storage shelf		<91				

Page 2 of 3





Page 3 of 3

BEST AVAILABLE COPY North Canton Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	North Canton Armory	5999 West Airport Dr., N. Canton, OH 44720
Date:	IH:	POC:
1/13/2015	Non-Responsive	Non-Responsive

Facility Description: The armory drill hall is available to the public for limited events. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result for the balance of the armory was above the NG Pam 420-15 guideline of 200 μ g/ft². In addition, one result for the top of vending machine in the drill hall was above 40 μ g/ft². The goal for the drill floor is 40 μ g/ft² since children may be present in this area. There was also some measureable lead contamination in the kitchen area.

Recommendations:

- 1. Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μ g/ft² for the supply room floor and below 40 μ g/ft² for the drill hall.
- 2. Increase housekeeping in the kitchen area.

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHNC- W35	Janitorial Closet – floor		109	OHNC- W37	Storage Room – sample off chair		<91
OHNC- W36	Table & Chair Storage Room – top of grey safe		<91	OHNC- W38	Drill Floor – base of basketball hoop	P	<91

Table 1. North Canton Armory Surface Wipe Sampling Results for Lead (January 2015).

Page 1 of 3

BEST AVAILABLE COPY North Canton Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
OHNC- W39	Kitchen – ice machine		<91	OHNC- W40	Kitchen – electrical disconnects		175

Table 2. North Canton Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHNC 9	In supply office on floor under key box		<u>807</u>	OHNC 11	Drill hall on floor outside of kitchen (12 x 12)		<10
OHNC 10	Drill hall on vending machine (12 x 12)		<u>45</u>				





Page **3** of **3**

BEST AVAILABLE COPY North Canton IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR – North Canton	5999 West Airport Dr., N. Canton, OH 44720
Date:	IH:	POC:
1/13/2015	Non-Responsive	Non-Responsive

Facility Description: Range converted to FTUS SNCO office, supply cages, and storage area (HRF gear).

Frequency of Use: Daily.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings	
Clean <200 μg/ft ²	15	21	
Moderate <1K µg/ft ²	1 (grenade launcher)	6 (floor, shelf, electrical box)	
High >1K μg/ft ²			
Very High >10K μg/ft ²		2 (grille face, light)	
Gross > 100K µg/ft ²			
Total Number of Results >200 μg/ft ²	1/16	8/29	
Summary	 Contents: 15/16 samples cleat Structures/Furnishings: 8/29 high lead contamination levels Face of grille and light fixture structures 	an. results showed moderate to very s. showed very high contamination	

Recommendations:

1-ac

2-b

Table 1. North Cantor	n IFR Surface	Wipe Sampling	Results for	Lead (Dec 201	14 & Jan 2015).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHNC- W13	Mess Station Cage –top of metal shelf		<u>566</u>	OHNC- W20	3 rd Platoon Cage – floor		<u>422</u>
OHNC- W14	Mess Station Cage – top of aluminum case		138	OHNC- W21	Supply Cage – metal shelf		<91
OHNC- W15	1 st Platoon Cage – top of black trunk		<91	OHNC- W22	Supply Cage – metal shelf		<91
OHNC- W-16	1 st Platoon Cage – top shelf of wooden shelf		156	OHNC- W23	PLT headquarters – green trunk	D	152
OHNC- W17	2 nd Platoon Cage – top of wooden shelf		<91	OHNC- W24	PLT headquarters – metal shelf		145
OHNC- W18	2 nd Platoon Cage – Top of 2- drawer file cabinet		<91	OHNC- W25	Absentee Baggage – black trunk		174
OHNC- W19	3 rd Platoon Cage – top of green wooden box		<91	OHNC- W26	Absentee Baggage – floor		163

Page **2** of **5**

BEST AVAILABLE COPY North Canton IFR - Surface Lead Sampling Report

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location Ph		oto	Lead (µg/ft ²)
OHNC- W27	Supply room – top of desk	67	<91	OHNC- W34	Gun Range – top of light fixture	in Range – o of light ture		<u>30,205</u>
OHNC- W28	Supply Room – work station		<91	1-OH- NC	Supply office coffee pot		No photo available	<91
				2-OH- NC	Supply office binder file cabinet		No photo available	<91
				3-OH- NC	Supply office wall file		No photo available	<91
OHNC- W29	Arms Room Vault – lockers		<91	4-OH- NC	Supply office computer base		No photo available	<91
				5-OH- NC	Supply office binder shelf		No photo available	<91
OHNC- W30	Weapons Vault – base of grenade launcher		<u>847</u>	6-OH- NC	Supply office file cabinet motor pool		No photo available	<91
				7-OH- NC	Supply office file cabinet clothing		No photo available	<91
				8-OH- NC	Supply office desk file cabinet		No photo available	<91
OHNC- W31	Gun Range Hallway – portable water stations		<91	9-0H- NC	Supply office computer base		No photo available	<91
				10-OH- NC	Supply cage box		No photo available	<91
				11-OH- NC	Supply cage metal shelf		No photo available	<91
OHNC- W32	Gun Range Hallway – metal cabinet		<91	12-OH- NC	3 rd platoon cage mask bag outside		No photo available	<91
				13-OH- NC	3 rd platoon cage mask bag inside		No photo available	<91
OHNC- W33	Gun Range – front of HVAC grill		<u>16,318</u>	14-OH- NC	2 nd platoon cage top range box		No photo available	<91
				15-OH- NC	2 nd platoon cage bottom range box		No photo available	<91
				16-OH- NC	1 st platoon cage top of range box		No photo available	<91
Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)	
-------------	---	-------	-------------------------------	-------------	---	-------	-------------------------------	
OHNC1	Supply room entrance on floor		<u>284</u>	OHNC5	Old range intake room on electrical switches		<u>579</u>	
OHNC2	Supply room second cage on the right, on shelf		126	OHNC6	Old range intake room on floor under ducts		<u>245</u>	

OHNC7

<u>415</u>

172

Old range on top of vault

room

Image unavailable

<91

1st platoon cage on shelf by

water jugs

Supply room back left

cage on floor

OHNC3

OHNC4

Table 2	North Conton	IED Surface Win	Sampling Poculta	for Load (Sontombor	2014)
Table 2.	North Cariton	IFR Sunace wipe	s Sampling Results	IUI Leau (September	2014).

Page 4 of 5

BEST AVAILABLE COPY North Canton IFR - Surface Lead Sampling Report



Figure 1. North Canton IFR Floor Plan with Sampling Locations (January 2015).

BEST AVAILABLE COPY Norwalk IFR - Surface Lead Sampling Report

State:	Facility:	Address:				
OH	IFR – Norwalk	400 West Main Street, Norwalk, OH 44857				
Date:	IH:	POCs:				
1/7/2015	Non-Responsive	Non-Responsive				
Facility Description: Range converted to platoon cages and storage area.						

Frequency of Use: Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Table 1. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings		
Clean <200 µg/ft ²	6	6		
Moderate <1K µg/ft ²		4 (shelf, floor, wall)		
High >1K μg/ft ²	2 (metal boxes)	2 (I-beam, floor)		
Very High >10K μg/ft ²		1 (shelf)		
Gross > 100K µg/ft ²				
Total Number of Results >200 μg/ft ²	2/8	7/13		
Summary	 Contents: 2/8 sample results showed high contamination on painted metal boxes. Structures/Furnishings: 7/13 results showed moderate to very high lead contamination levels. Assume wall fan is contaminated. Backstop frame/I-beam showed high contamination; ceiling baffles, sound proofing present. 			

Recommendations:

1-b

2-bd

Wipe metal boxes before removal and use. May be lead based paint on metal boxes, especially the green foot locker; consider replacing. Backstop framing and sound proofing material are present and should be removed IAW NG Pam 420-15.

Table 1.	Norwalk	IFR	Surface	Wipe	Sampling	Results	for Lead	(Januar	y 2015).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
NOR- W1	Old range, Room 111F, supply cage, on painted I-beam support for old backstop		<u>9,864</u>	NOR- W8	Old range, Room 111E, supply cage, on top of wood rope reel (Tubbs cordage)		170
NOR- W2	Old range, Room 111F, supply cage, on metal shelf just above floor level		<u>378</u>	NOR- W9	Old range, Room 111E, supply cage, on green painted metal box on shelf (3 rd shelf from floor level)		<u>1,995</u>
NOR- W3	Old range, Room 111F, supply cage, on composite wood floor (raised platform), old backstop pit area		<u>494</u>	NOR- W10	Old range, Room 111C, 1st's cage, on metal shelf near cage entry door		101
NOR- W4	Old range, Room 111F, supply cage, on cardboard box for gun cover		<91	NOR- W11	Old range, Room 111C, 1st's cage, on metal tool box stacked against back wall		<u>1,837</u>
NOR- W5	Old range, Room 111F, supply cage, on metal shelf (3 rd shelf from floor level)		<u>53,864</u>	NOR- W12	Old range, Room 111B, maintenance cage, on metal shelves, back wall (3 rd shelf from floor level)		<91
NOR- W6	Old range, Room 111D, 2nd's cage, on top shelf of metal storage rack	010772015	<u>275</u>	NOR- W13	Old range, Room 111B, maintenance cage, on green vinyl tent cover stacked on floor		<91
NOR- W7	Old range, Room 111D, 2nd's cage, on green painted metal storage box on floor		<91	NOR- W14	Old range, Room 111A, 3rd's cage, on green pelican case (HHC 612 th maint special tool)	HIC CARACTERIST DESIGN	<91

Page 2 of 4

BEST AVAILABLE COPY Norwalk IFR - Surface Lead Sampling Report

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
NOR- W15	Old range, Room 111, on yellow flammable cabinet near firing line		<91	NOR- W21	Old range, Room 111, on painted metal ceiling baffle (2nd baffle from backstop area)		121
NOR- W16	Old range, Room 111, on metal ladder along wall across from cages		138	NOR- W22	Old range, Room 111, on unpainted concrete wall (about 1' AFF)		<u>340</u>
NOR- W17	Old range, Room 111E, on concrete floor near old backstop area		<u>2.665</u>	NOR- W23	Old range, Room 111, on wall acoustic sound proofing near wall exhaust fan		<91
NOR- W18	Old range, Room 111E, on painted concrete wall below cinder block wall		<91				







BEST AVAILABLE COPY Norwalk Armory – Surface Lead Sampling Report

State:	Facility:	Address:
OH	Norwalk Armory	400 West Main Street, Norwalk, OH 44857
Date:	IH:	POCs:
1/7/2015	Non-Responsive	Non-Responsive

Facility Description: The armory is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Table 1 contains the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. One surface wipe sample result for the balance of the armory was above the NG Pam 420-15 guideline of 200 μ g/ft². The sample was on an electrical box on the drill floor.

Recommendations:

1. Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μ g/ft².

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
NOR- W24	Drill floor on top of electrical panel C		<u>792</u>	NOR- W27	Female latrine on painted radiant heater against wall		<91
NOR- W25	Drill floor on motor control box for overhead roll up door (12' AFF)		106	NOR- W28	Corridor outside supply office (Room 117) on metal storage cabinet	2	<91
NOR- W26	Conference room (Room 113) on file cabinet		<91	NOR- W29	Copier room on painted wood wall shelf (form sorter)		<91

Table 1. Norwalk Armory Surface Wipe Sampling Results for Lead (January 2015).

Page **1** of **3**

BEST AVAILABLE COPY Norwalk Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft²)	Sample #	Location	Photo	Lead Result (µg/ft²)
NOR- W30	Training office (Room 120) on metal bookcase		<91	NOR- W32	Classroom (Room 106) on file cabinet	ACCENT OF A	115
NOR- W31	Kitchen on top of TurboAir refrigerator		<91				

Page 2 of 3



Figure 1. Norwalk Armory Floor Plan with Sampling Locations (January 2015).

Page 3 of 3

BEST AVAILABLE COPY Sandusky IFR - Surface Lead Sampling Report

State:	Facility:	Address:
OH	IFR – Sandusky	117 Woodlawn Ave, Sandusky, OH 44870
Date: 1/7/2015 1/8/2015	IH: Non-Responsive	POC: Non-Responsive

Facility Description: Range converted to storage area and garage. Drill floor was part of former IFR.

Frequency of Use: Weekly.

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings		
Clean <200 µg/ft ²	2 (items removed)	4		
Moderate <1K μg/ft ²		1 (rollup door frame)		
High >1K μg/ft²				
Very High >10K µg/ft ²		1 (I-beam)		
Gross > 100K μg/ft ²		2 (I-beam)		
Total Number of Results >200 μg/ft ²	0/2	4/8		
Summary	 Contents: 2 samples clean; items had been removed from a Structures/Furnishings: 4/8 results showed moderate to gro lead contamination levels on rollup door frame and I-beam (isolated). Grille of HVAC system on drill floor was clean (old firing line) 			

Recommendations:

1-a

2-a

Sample #	Location	Photo	Lead (µg/ft²)] [Sample #	Location	Photo	Lead (µg/ft²)
OHSD -W9	Gun Range – top of I- beam		<u>277,273</u>		OHSD -W16	I-beam on backstop door of Gun Range		<u>485</u>
OHSD -W10	Gun Range – top of I- beam	A A	<u>64,136</u>		OHSD -W20	Grill of HVAC system on drill floor		93
OHSD -W11	Top of metal cabinet		<91		SAN- W1	Drill hall, on top of metal display cabinet near flag		100
OHSD -W15	Base of basketball hoop		<91			<u>.</u>	<u>.</u>	

Table 1. Sandusky IFR Surface Wipe Sampling Results for Lead (January 2015).

Table 2. Sandusky IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft²)	Sample #	Location	Photo	Lead (µg/ft²)
OHSD1	Old range backstop on floor		<91	OHSD7	On top of old range roll down gate.		128
OHSD2	Old range backstop on I-beam	B/22/2014	<u>256,455</u>				





Page 3 of 3

BEST AVAILABLE COPY Sandusky Armory – Surface Lead Sampling Report

State: OH	Facility: Sandusky Armory	Address: 117 Woodlawn Ave, Sandusky, OH 44870
Date:	IH:	POC:
1/7/2015	Non-Responsive	Non-Responsive
1/8/2015		

Facility Description: The armory is not available to the public. This facility contains a former indoor firing range.

Results: The focus of this sampling effort was to conduct a baseline lead dust survey for the balance of the armory; sampling results for the former indoor firing range are reported separately. Tables 1 and 2 contain the sampling results. Figure 1 shows the sampling locations for 2015. Surface wipe sampling locations were biased toward visible settled dust (worst case) to identify contamination levels. Two surface wipe sample results for the balance of the armory were above the NG Pam 420-15 guideline of 200 μ g/ft². The results were for samples from the kitchen serving window and on the floor between supply rooms.

Recommendations:

1. Increase housekeeping efforts in the armory using high efficiency particulate air filter vacuuming and/or wet methods to achieve lead levels below 200 μ g/ft².

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
SAN- W2	Classroom on top of trophy cabinet		<91	OHSD- W14	Storage shelf in Storage Room off of Boiler Room		<91
OHSD- W12	Top of water heater in Boiler Room		<91	OHSD- W17	Kitchen – ice machine		<91
OHSD- W13	Storage cabinet in Storage Room off of Boiler Room		134	OHSD- W18	Kitchen – top shelf used to store pots		<91

Table 1	Sandusky		/ Surface V	Vine Sam	olina Resul	ts for l	ead (J	lanuarv	2015)
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Page 1 of 3

BEST AVAILABLE COPY Sandusky Armory – Surface Lead Sampling Report

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHSD- W19	Top of microwave		<91	OHSD- W22	Storage locker wooden shelf		<91
				OHSD- W23	Storage locker old desk in back	No photo available	<91
OHSD- W21	Tread mill in Weight Room		<91	OHSD- W24	SGT Hunt office – mouse pad		<91

Table 2. Sandusky Armory Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead Result (µg/ft ²)	Sample #	Location	Photo	Lead Result (µg/ft ²)
OHSD3	Kitchen on serving window roll away		<u>674</u>	OHSD4	Between supply rooms on floor		<u>201</u>





Page 3 of 3

BEST AVAILABLE COPY Springfield IFR – Surface Lead Sampling Report

State:	Facility:	Address:						
OH	IFR – Springfield	4440 Laybourne Rd., Springfield, OH 45505						
Date:	IH:	POCs:						
1/7/2015	Non-Responsive	Non-Responsive						
Facility Description: Range converted into a kitchen and mess hall.								

Frequency of Use: Monthly during drill (dining facility).

Results: The focus of this sampling effort was to conduct a baseline surface lead survey of the old indoor firing range and to determine the contamination status of the contents stored in the old range. The following summary table shows the number of sample results at each lead level. Individual sampling results are provided in Tables 1 and 2. Results for "content" samples are italicized. Figure 1 is a floor plan showing the 2015 sampling locations.

Lead	Contents	Structures & Furnishings				
Clean <200 µg/ft ²	6	8				
Moderate <1K µg/ft ²		2 (serving window, floor)				
High >1K μg/ft²		1 (chair closet on ventilation motor)				
Very High >10K µg/ft²		1 (inside intake duct to old range)				
Gross > 100K µg/ft ²						
Total Number of Results >200 μg/ft ²	0/6	4/12				
Summary	 Contents: 6 samples clean. Structures/Furnishings: 4/12 results showed moderate to very high lead contamination levels. Inside intake duct to old range showed very high contamination 					

Recommendations:

1-ac

2-bc

The ventilation from the old range, which goes through the wall into the drill hall, needs to be decontaminated or removed. This appears to be a major source of contamination of lead dusts for the mess hall area. Consider relocating the mess hall to another location.

Table 1. S	Springfield IF	R Surface Wipe	Sampling	Results for	Lead (Januar	y 2015).
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Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft²)
OHSF13	Old range mess hall on ice cart		<91	OHSF18	Old range kitchen on food warmer		<91
OHSF14	Old range chow hall chair storage on chair		<91	OHSF19	Old range kitchen storage area on pan lid, back shelf		<91
OHSF15	Old range mess hall area inside drop ceiling		<91	OHSF20	Old range kitchen storage area on MRE box		<91
OHSF16	Old range mess hall area on water cans	91 1 3/A'	<91	OHSF21	Office next to kitchen area on shelf		<91
OHSF17	Old range kitchen on toaster		<91				

Table 2. Springfield IFR Surface Wipe Sampling Results for Lead (September 2014).

Sample #	Location	Photo	Lead (µg/ft ²)	Sample #	Location	Photo	Lead (µg/ft ²)
OHSF1	Old range mess hall side in chair closet on ventilation motor		<u>1,931</u>	OHSF5	Old range now kitchen area on floor under old range air duct		<u>215</u>
OHSF2	Inside intake duct to old range in Room 129	Reimpi	<u>24,068</u>	OHSF6	Old range storage area on floor back right corner		157
OHSF3	Old range mess area in serving window	RE17804	<91	OHSF7	Old range kitchen storage area on cabinet		<91
OHSF4	On top of roll away serving window	R22000	<u>321</u>	OHSF8	Old range mess hall on floor by drill wall (12x12)		<10
OHSF9	Old range kitchen area on warming rack (12x12)		14				

Figure 1. Springfield Armory Floor Plan with Sample Locations (January 2015).

Page 4 of 4