

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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Abbotsford Armory, Abbotsford, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 9, 2014 at the Wisconsin Army National Guard Abbotsford Armory, 1000 E. Elm St, Abbotsford, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Abbotsford Armory is the base of operations for Detachment 1, Headquarters, 1<sup>st</sup> Battalion, 128<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Abbotsford Armory had an indoor firing range (IFR) that was closed prior to 1992 and converted to a storage area. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is used for community activities that include recruiting high school students. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Abbotsford Armory. Eight of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Abbotsford Armory had an indoor firing range (IFR) that was closed prior to 1992 and converted to a storage area. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.

#### Recommendations:





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Abbotsford Armory  
Abbotsford, Wisconsin  
October 9, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WABW1	Unit storage, former IFR, NW corner on floor		22	3.2
WABW2	Unit storage, former IFR, NE corner on floor		64	5.8
WABW3	Unit storage, former IFR, center on floor		<10	<1.0
WABW4	Unit storage, former IFR, SE corner on floor		94	5.0
WABW5	Unit storage, former IFR, SW corner on floor		16	2.6
WABW6	Vault, on cabinet		50	7.0

A-2



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WABW7	Drill floor, center on floor		<10	<1.0
WABW8	Kitchen, on stove top		<10	<1.0
WABW9	Classroom, on desktop		<10	<1.0
WABW10	Day room, on desktop		<10	<1.0
WABW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Abbotsford, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12218  
DFOH Lab Nos.: TM-15-74523 through TM-15-74533  
Date Received: 10/14/14  
Data Analyzed: 10/21/14 – 10/22/14  
Date Issued: 10/22/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



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## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WABW1	TM-15-74523	22	22
WABW2	TM-15-74524	64	64
WABW3	TM-15-74525	<10	<10
WABW4	TM-15-74526	94	94
WABW5	TM-15-74527	16	16
WABW6	TM-15-74528	50	50
WABW7	TM-15-74529	<10	<10
WABW8	TM-15-74530	<10	<10
WABW9	TM-15-74531	<10	<10
WABW10	TM-15-74532	<10	<10
WABW11**	TM-15-74533	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WABW1	TM-15-74523	3.2	3.2
WABW2	TM-15-74524	5.8	5.8
WABW3	TM-15-74525	<1.0	<1.0
WABW4	TM-15-74526	5.0	5.0
WABW5	TM-15-74527	2.6	2.6
WABW6	TM-15-74528	7.0	7.0
WABW7	TM-15-74529	<1.0	<1.0
WABW8	TM-15-74530	<1.0	<1.0
WABW9	TM-15-74531	<1.0	<1.0
WABW10	TM-15-74532	<1.0	<1.0
WABW11**	TM-15-74533	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



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\* Applied to organic and inorganic analysis in cases of an emergency only. <sup>a</sup> Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Antigo Armory, Antigo, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 8, 2014 at the Wisconsin Army National Guard Antigo Armory, 720 Amron Ave, Antigo, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Antigo Armory is the base of operations for Company C, Brigade Special Troops Battalion (Signal). During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Antigo Armory had an indoor firing range (IFR) that was closed in 1975 and converted to a maintenance bay and locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Boy Scout meetings, City of Antigo pickle ball games, and as a food distribution center. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Two of the surface wipe sample results exceeded the guidelines for lead. Sample WANW5, which was collected on the floor in the locker room, in the southeast corner of the bullet trap area in the former IFR, had a lead concentration of 2,388  $\mu\text{g}/\text{ft}^2$ . Sample WANW6, which was collected on the floor in the locker room, in the southwest corner of the bullet trap area in the former IFR, had a lead concentration of 692  $\mu\text{g}/\text{ft}^2$ . The following actions are required:



- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Antigo Armory. Eleven of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Antigo Armory had an indoor firing range (IFR) that was closed in 1975 and converted to a maintenance bay and locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.







The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Two of the surface wipe sample results exceeded the guidelines for lead. Sample WANW5, which was collected on the floor in the locker room, in the southeast corner of the bullet trap area in the former indoor firing range, had a lead concentration of 2,388 µg/ft<sup>2</sup>. Sample WANW6, which was collected on the floor in the locker room, in the southwest corner of the bullet trap area in the former indoor firing range, had a lead concentration of 692 µg/ft<sup>2</sup>.

#### **Recommendations:**





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Antigo Armory  
Antigo, Wisconsin  
October 8, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WANW1	Vault, on floor		112	3.4
WANW2	Maintenance bay, former IFR, behind firing line on floor		28	2.4
WANW3	Maintenance bay, former IFR, at firing line on floor		125	9.1
WANW4	Maintenance bay office, former IFR, midrange on floor		37	10
WANW5	Locker room, former IFR, at bullet trap, SE corner on floor		<b>2,388</b>	8.3
WANW6	Locker room, former IFR, at bullet trap, SW corner on floor		<b>692</b>	4.6

A-2



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WANW7	Drill floor, center on floor		<10	<1.0
WANW8	Kitchen, on counter top		<10	<1.0
WANW9	Classroom, on desktop		<10	<1.0
WANW10	Copy room and administration office, on desktop		<10	<1.0
WANW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Antigo, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12217  
DFOH Lab Nos.: TM-15-74512 through TM-15-74522  
Date Received: 10/14/14  
Data Analyzed: 10/21/14 – 10/22/14  
Date Issued: 10/22/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



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## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WANW1	TM-15-74512	112	112
WANW2	TM-15-74513	26	26
WANW3	TM-15-74514	125	125
WANW4	TM-15-74515	37	37
WANW5	TM-15-74516	2388	2388
WANW6	TM-15-74517	692	692
WANW7	TM-15-74518	<10	<10
WANW8	TM-15-74519	<10	<10
WANW9	TM-15-74520	<10	<10
WANW10	TM-15-74521	<10	<10
WANW11**	TM-15-74522	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WANW1	TM-15-74512	3.4	3.4
WANW2	TM-15-74513	2.4	2.4
WANW3	TM-15-74514	9.1	9.1
WANW4	TM-15-74515	10	10
WANW5	TM-15-74516	8.3	8.3
WANW6	TM-15-74517	4.6	4.6
WANW7	TM-15-74518	<1.0	<1.0
WANW8	TM-15-74519	<1.0	<1.0
WANW9	TM-15-74520	<1.0	<1.0
WANW10	TM-15-74521	<1.0	<1.0
WANW11**	TM-15-74522	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12217  
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Industrial Hygiene Survey  
Survey date: October 8, 2014

Antigo Armory  
Antigo, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

506 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 595-6415 Fax: (312) 885-6434				Agreement No.: <b>A 106644</b> Statement No.: <b>S 104401</b> Project No.: <b>P 184442</b> Agency: <b>WIARNG</b> Proj. Manager: <b>Antigo Armory</b> Location (City, State): <b>Antigo, WI</b>		For Lab Use Only Project/Report #: <b>12917</b> Due Date: <b>10/20/14</b> Samples Received Chilled? <b>YES</b> Container Type: <b>P-Plastic, G-Glass, V-VOC</b> Preservatives: <b>A-None, B-H<sub>2</sub>SO<sub>4</sub>, C-HNO<sub>3</sub>, D-H<sub>2</sub>O<sub>2</sub></b> STD: <b>Standard</b> SD: <b>Three Day Rush</b> WRT: <b>Weekend/Holiday</b>				Conditions of Receipt with Name & Date: Rec. 10/20/14				
Non-Responsive														
ID #	Type	Matrix	Collection Date	Time	Sample Location / Description	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (m <sup>2</sup> )	Water Code	Turn Around Time*	Lab ID #	Lead	Cadmium
WANWI	7	5	10/8/14					1				74512		
2	1											74513		
3	1											74514		
4	1											74515		
5	1											74516		
6	1											74517		
7	1											74518		
8	1											74519		
9	1											74520		
10	1											74521		
✓ 11	✓	✓	✓		Field blank			-				✓ 74522	✓	✓
1-Air 2-Water 3-Point 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other 1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.8 um, 37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other														
COMMENTS: <b>samples are 1 square foot</b>														

\* Applied to organic and inorganic analysis in cases of an emergency only. \*\* Applied to inorganic and organic samples. SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 28, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Ashland Armory, Ashland, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 7, 2014 at the Wisconsin Army National Guard Ashland Armory, 420 Sanborn Ave, Ashland, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Ashland Armory was built in 1956. The armory is the base of operations for Detachment 2 829<sup>th</sup> Engineer Company (Vertical). During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Ashland Armory had an indoor firing range (IFR) that was closed in 1994 and converted to storage and a classroom. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include a polling place for voting and a community hazmat collection site (in the parking lot). The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Three of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WASW2, which was collected on the floor in storage, at the firing line in the former indoor firing range, had a lead concentration of 240 µg/ft<sup>2</sup>. Sample WASW3, which was collected on the floor in storage, midrange in the former indoor firing range, had a lead concentration of 836 µg/ft<sup>2</sup>. Sample WASW6, which was collected on the floor in the vault, had a cadmium concentration of 42 µg/ft<sup>2</sup>. The following actions are required:



- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Ashland Armory. Nine of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Ashland Armory had an indoor firing range (IFR) that was closed in 1994 and converted to storage and a classroom. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.






The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Three of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WASW2, which was collected on the floor in storage, at the firing line in the former indoor firing range, had a lead concentration of 240 µg/ft<sup>2</sup>. Sample WASW3, which was collected on the floor in storage, midrange in the former indoor firing range, had a lead concentration of 836 µg/ft<sup>2</sup>. Sample WASW6, which was collected on the floor in the vault, had a cadmium concentration of 42 µg/ft<sup>2</sup>.

#### **Recommendations:**





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Ashland Armory  
Ashland, Wisconsin  
October 7, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WASW1	Storage, former IFR, behind firing line on floor		107	<1.0
WASW2	Storage, former IFR, at firing line on floor		240	1.7
WASW3	Storage, former IFR, midrange on floor		836	2.1
WASW4	Classroom, former IFR, at bullet trap, SW corner on floor		<10	<1.0
WASW5	Classroom, former IFR, at bullet trap, NW corner on floor		<10	<1.0
WASW6	Vault, on floor		32	42

A-2



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WASW7	Drill floor, center on floor		<10	<1.0
WASW8	Maintenance bay, on flammable liquid storage cabinet		198	<1.0
WASW9	Classroom A, on desk top		25	1.7
WASW10	Kitchen, on microwave		<10	<1.0
WASW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

**Reference Data:** Lead and Cadmium  
**Sampling Site:** NGB: Ashland, WI (Armory)  
**Sample Media:** Ghost Wipe(s)®  
**Method Reference:** OSHA ID-121  
**Project ID:** Project 12222  
**DFOH Lab Nos.:** TM-15-74567 through TM-15-74577  
**Date Received:** 10/14/14  
**Data Analyzed:** 10/22/14 – 10/23/14  
**Date Issued:** 10/23/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

**General Lab Comments:**

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



**Project 12222**  
**Page 1 of 2**

**FOH ENVIRONMENTAL LABORATORY**

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

**LEAD on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WASW1	TM-15-74567	107	107
WASW2	TM-15-74568	240	240
WASW3	TM-15-74569	836	836
WASW4	TM-15-74570	<10	<10
WASW5	TM-15-74571	<10	<10
WASW6	TM-15-74572	32	32
WASW7	TM-15-74573	<10	<10
WASW8	TM-15-74574	198	198
WASW9	TM-15-74575	25	25
WASW10	TM-15-74576	<10	<10
WASW11**	TM-15-74577	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WASW1	TM-15-74567	<1.0	<1.0
WASW2	TM-15-74568	1.7	1.7
WASW3	TM-15-74569	2.1	2.1
WASW4	TM-15-74570	<1.0	<1.0
WASW5	TM-15-74571	<1.0	<1.0
WASW6	TM-15-74572	42	42
WASW7	TM-15-74573	<1.0	<1.0
WASW8	TM-15-74574	<1.0	<1.0
WASW9	TM-15-74575	1.7	1.7
WASW10	TM-15-74576	<1.0	<1.0
WASW11**	TM-15-74577	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12222**  
**Page 2 of 2**

Industrial Hygiene Survey  
Survey date: October 7, 2014

Ashland Armory  
Ashland, WI

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET																			
538 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 895-0912 Fax: (312) 896-0134				Agreement No.: A 106644		Project / Report #: 12982/14		For Lab Use Only											
<div style="background-color: black; color: red; font-weight: bold; padding: 10px; text-align: center;">Non-Responsive</div>				Statement No.: S 104441		Due Date:		Conditions or Ratings with Name & Date											
				Project No.: P 184442		Samples Received Chilled? YES													
				Agency: WIARNG		Container Type:		STD - Standard											
				Proj. Manager: Ashland Armory		Preservatives:		3D - Three Day Rush*											
Location: Ashland, WI		City, State:		A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH		WH Weekend/Holiday*													
Sample				Sample Location / Description		Air		Wipe		Water		Turn Around Time*		Lab ID #		Lead		Cadmium	
Ind	Type	Media	Collected Date	Time	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft <sup>2</sup> )	Volume (Liters)	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.
WASWI	7	5	10/7/14						1					TM-15-74567					
2	1													74568					
3	1													74569					
4	1													74570					
5	1													74571					
6	1													74572					
7	1													74573					
8	1													74574					
9	1													74575					
10	1													74576					
✓	11	✓	✓	✓					-					74577	✓	✓			
					Field blank														
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				1-Charcoal 2-Matched Weight 0.8um 3-PVC filter 4-M CE 0.8 um, 37 mm 5-Ghost Wipes™ 6. Passive badge 7. Other				<div style="background-color: black; color: red; font-weight: bold; padding: 10px; text-align: center;">Non-Responsive</div>											
COMMENTS: samples are 1 square foot																			

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

October 3, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Elkhorn Armory, Elkhorn, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on August 26, 2014 at the Wisconsin Army National Guard Elkhorn Armory, 401 E. Fair St, Elkhorn, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Elkhorn Armory was built in 1954. The armory is the base of operations for Detachment 1 Company A and 132<sup>nd</sup> Brigade Support Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Elkhorn Armory had an indoor firing range that was closed and converted to a fitness room and locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include the Civil Air Patrol, Cub Scouts, weekly Bingo nights, and a polling place for elections. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in the vault, had a lead concentration of 261 µg/ft<sup>2</sup>. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached

## Appendix A

### Lead – Wipe Sampling

#### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WEAW1, which was collected on the floor in the vault, had a lead concentration of 261  $\mu\text{g}/\text{ft}^2$ .

#### Recommendations:




1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Elkhorn Armory  
Elkhorn, Wisconsin  
August 26, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WEAW1	Vault, on floor		261
WEAW2	Fitness room, former IFR, at firing line, on floor		<10
WEAW3	Locker room, former IFR, midrange, on floor		40
WEAW4	Locker room, former IFR, at bullet trap, in northwest corner, on floor		28
WEAW5	Locker room, former IFR, at bullet trap, in northeast corner, on floor		17
WEAW6	Operations room, on desktop		<10

A-2



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WEAW7	Classroom, on table top		<10
WEAW8	Maintenance bay, on flammable liquid storage cabinet		48
WEAW9	Kitchen, on pizza oven		<10
WEAW10	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

Laboratory Result Reports and Chain of Custody Sheets



FOH ENVIRONMENTAL LABORATORY

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

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Elkhorn, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12007  
DFOH Lab Nos.: TM-14-71376 through TM-14-71385  
Date Received: 08/28/14  
Data Analyzed: 08/28/14 – 08/29/14  
Date Issued: 08/29/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame and/or Perkin Elmer 600 furnace atomic absorption spectrophotometer (AA).

General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12007  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WEAW1	TM-14-71376	261	261
WEAW2	TM-14-71377	<10	<10
WEAW3	TM-14-71378	40	40
WEAW4	TM-14-71379	28	28
WEAW5	TM-14-71380	17	17
WEAW6	TM-14-71381	<10	<10
WEAW7	TM-14-71382	<10	<10
WEAW8	TM-14-71383	48	48
WEAW9	TM-14-71384	<10	<10
WEAW10**	TM-14-71385	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft <sup>2</sup>	250 µg/ft <sup>2</sup>	400 µg/ft <sup>2</sup>

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead - Flame AA	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 12007  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: August 26, 2014

Elkhorn Armory  
Elkhorn, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

<b>Environmental Laboratory</b> 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement of Work No.: S 180648 Project No.: P 189649 Agency: WIARNG Proj. Manager: ELKHORN ARMORY Location (City, State): ELKHORN, WIS				<b>For Lab Use Only</b> Project Report #: 12007 Due Date: 12/15/14 Samples Received Chilled? YES (circle one) Water Sample Codes: Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH Turn Around Time Codes: STD- Standard 3D- Three Day Rush® WH Weekend/Holiday*				Conditions on Receipt with Name & Date Analysis Requested			
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>				ID # Type <sup>1</sup> Media <sup>2</sup> Collected Date Time Sample Location / Description				Air Flow Time Volume Wipe Area Volume Water Code <sup>3</sup> Turn Around Time <sup>4</sup> Lab ID #							
				NEAW1 7 5 8/26				1 SQUARE FOOT 7/376							
				2				7/377							
				3				7/378							
				4				7/379							
				5				7/380							
				6				7/381							
				7				7/382							
				8				7/383							
				9				7/384							
NEAW10 1 5				FIELD BLANK - 7/385											
Sample Type Codes: 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				Sample Media Codes: 1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.8um, 37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other				Relinquished By: Date & Time: Recieved By: Date & Time:							
COMMENTS: 1 square foot samples								<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>							

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

October 28, 2013

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Hayward Armory, Hayward, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 15, 2013 at the Wisconsin Army National Guard Hayward Armory 10691, Main Street, Hayward, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel IAW DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The armory had an indoor firing range (IFR) that had been closed and converted to offices, a classroom and a conference room. Site personnel could not provide information about when the IFR had been closed. Wipe samples were collected on representative surfaces in the facility and the former IFR area and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. A sample collected on a desk in room 102, at the bullet trap area in the former IFR, had a lead concentration of 841  $\mu\text{g}/\text{ft}^2$ . The following actions are required:

- **Clean the horizontal surfaces of the kitchen, room 102 and maintenance areas using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**

A lighting survey was conducted in the shops and offices in the Hayward Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office areas and classrooms.

Industrial Hygiene Survey  
Survey Date: October 15, 2013

Hayward Armory  
Hayward, WI

---

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

<b>Appendix</b>	<b>Title</b>	<b>Status</b>
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Surface Wipe Sampling for Lead

#### Surface Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates IAW the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess potential migration of lead to food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

Although OSHA does not have published exposure standards for metal surface contamination, the 29 CFR 1910 requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts. In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The armory had an indoor firing range (IFR) that had been closed and converted to offices, a class room and a conference room. Site personnel could not provide information about when the IFR had been closed.






The NGB Mid-West Regional IH Office has adopted the guideline for lead of 200 µg/ft<sup>2</sup> as published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges*. Any results that exceed this guideline are considered significant. One result exceeded this guideline. Sample WHAW4, which was collected on a desk in room 102 (at the bullet trap area in the former IFR) had a lead concentration of 841 µg/ft<sup>2</sup>.

#### **Recommendations:**

1. Clean the horizontal surfaces of the kitchen, room 102, and maintenance areas using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).



Table A-1  
Surface Wipe Sampling Results for Lead  
Wisconsin Army National Guard, Hayward Armory, Hayward WI  
October 15, 2013

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WHAW1	Kitchen, on Range		<91
WHAW2	Vault, on Floor		<91
WHAW3	Room 106, Former IFR Firing Line Area, on Floor		<91
WHAW4	Room 102, Former IFR Bullet Trap Area, on Desk		<b>841</b>
WHAW5	Drill Floor, Center on Floor		152
WHAW6	Field blank	N/A	ND

Notes: 1)  $\mu\text{g} / \text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Hayward, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11411  
DFOH Lab Nos.: TM-14-64446 through TM-14-64451  
Date Received: 10/17/13  
Date Analyzed: 10/18/13  
Date Issued: 10/21/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11411  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WHAW1	TM-14-64446	<10	<91
WHAW2	TM-14-64447	<10	<91
WHAW3	TM-14-64448	<10	<91
WHAW4	TM-14-64449	93	841
WHAW5	TM-14-64450	17	152
WHAW6**	TM-14-64451	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sits

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 11411  
Page 2 of 2

# Non-Responsive

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

ARNG-CSG-P

October 3, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Janesville Armory, Janesville, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on August 26, 2014 at the Wisconsin Army National Guard Janesville Armory, 11 Palmer Drive, Janesville, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Janesville Armory is the base of operations for Alpha 132<sup>nd</sup> Brigade Transportation and the 132<sup>nd</sup> Brigade Support Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Janesville Armory had an indoor firing range that was closed and converted to a maintenance bay and kitchen. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include the annual Christmas party. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guideline for lead. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Lead – Wipe Sampling

#### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guideline for lead.




#### Recommendations:

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Janesville Armory  
Janesville, Wisconsin  
August 26, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WJAW1	Vault, on floor		112
WJAW2	Maintenance bay, former IFR, at firing line, on flammable liquid storage cabinet		50
WJAW3	Maintenance bay, former IFR, midrange, on floor		39
WJAW4	Maintenance bay, former IFR, at bullet trap, in the southeast corner, on floor		47
WJAW5	Maintenance bay, former IFR, at bullet trap, in the southwest corner, on floor		36
WJAW6	Drill floor, center		<10

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WJAW7	Kitchen, former IFR, behind bullet trap, on center food prep table		<10
WJAW8	Kitchen, former IFR, behind bullet trap, 5' high on west wall near dishwashing sink		<10
WJAW9	Classroom, on table top		<10
WJAW10	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Janesville, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12006  
DFOH Lab Nos.: TM-14-71366 through TM-14-71375  
Date Received: 08/28/14  
Data Analyzed: 08/28/14 – 08/29/14  
Date Issued: 08/29/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame and/or Perkin Elmer 600 furnace atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12006  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WJAW1	TM-14-71366	112	112
WJAW2	TM-14-71367	50	50
WJAW3	TM-14-71368	39	39
WJAW4	TM-14-71369	47	47
WJAW5	TM-14-71370	36	36
WJAW6	TM-14-71371	<10	<10
WJAW7	TM-14-71372	<10	<10
WJAW8	TM-14-71373	<10	<10
WJAW9	TM-14-71374	<10	<10
WJAW10**	TM-14-71375	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft <sup>2</sup>	250 µg/ft <sup>2</sup>	400 µg/ft <sup>2</sup>

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead - Flame AA	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**



Project 12006  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: August 26, 2014

Janesville Armory  
Janesville, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

<b>Environmental Laboratory</b> 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0412 Fax: (312)-886-0434				<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement of Work No.: S 180648 Project No.: P 189649 Agency: WIARNG Proj. Manager: Location: <u>JANESVILLE Armory</u> (City, State): <u>JANESVILLE, WI</u>				<b>For Lab Use Only</b> Project/Report #: 12006 Due Date: 9/5/14 Samples Received Chilled? <u>YES</u> (circle one) Rev. 07/20/10 Water Sample Codes: Turn Around Time Codes: Analysis Requested: Container Types: STD- Standard P-Plastic, G-Glass, V-VOC 3D- Three Day Rush® Preservatives: WH Weekend/Holiday* A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH			
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>				ID # Type Media Collected Date Time Sample Location / Description Flow (LPM) Time (Min) Volume (Liters) Area (ft²) Volume (Liters) Code Turn Around Time Lab ID #							
				WJAW1 7 5 8/26				1 Square Foot 7/1366			
				WJAW2				7/1367			
				WJAW3				7/1368			
				WJAW4				7/1369			
				WJAW5				7/1370			
				WJAW6				7/1371			
				WJAW7				7/1372			
				WJAW8				7/1373			
				WJAW9				7/1374			
WJAW10				Field Blank - 7/1375							
Sample Type Codes: 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				Sample Media Codes: 1-Chemical 2-Match 3-Weight 4-Bum 3-PVC filter 4-M CE 0.8 um .37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other				Relinquished By: Date & Time: Received By: Date & Time:			
COMMENTS: 1 square foot samples				<div style="background-color: black; color: red; font-size: 3em; text-align: center; padding: 10px;">Non-Responsive</div>							

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

April 18, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Kenosha Armory, Kenosha, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive** Certified Industrial Hygienist (CIH), conducted a survey on March 20, 2014 at the Wisconsin Army National Guard Kenosha Armory, 4200 43<sup>rd</sup> Street, Kenosha, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Kenosha Armory was built in 1987 and it has about 29,185 square feet of floor space. The armory was under renovation on the day of the survey. The Kenosha Armory is the base of operations for Bravo Company 257<sup>th</sup> BSB. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Kenosha Armory had an indoor firing range (IFR) that has been closed and converted to a combative room and locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: civil air patrol meetings and adult karate clubs. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in the vault, had a lead concentration of 217  $\mu\text{g}/\text{ft}^2$ . The following actions are required:



- Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

A lighting survey was conducted in the shops and offices in the Kenosha Armory. Fifteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).

For any further questions, please contact Non-Responsive

Non-Responsive

Non-Responsive

Non-Responsive

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached



**Appendix A**  
**Lead – Wipe Sampling****Surface Area Wipe Samples**




Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WKARW25, which was collected on the floor in the vault, had a lead concentration of 217 µg/ft<sup>2</sup>.

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Kenosha Armory  
Kenosha, Wisconsin  
March 20, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
<b>Surface Guideline</b>			<b>200</b>
WKARW21	Room 103, Classroom 2, on table		<91
WKARW22	Room 114, Kitchen, on counter*		<91

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WKARW23	Room 7, Combative area, former IFR, at firing line, on floor		<91
WKARW24	Basement, Locker room, former IFR, at bullet trap, on floor		<91
WKARW25	Vault, on floor		217
WKARW26	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method. 4) \* = Construction in room at time of survey

### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Kenosha, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11656  
DFOH Lab Nos.: TM-14-88668 through TM-14-88673  
Date Received: 03/21/14  
Data Analyzed: 03/21/14 – 03/25/14  
Date Issued: 03/26/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11656  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WKARW21	TM-14-66668	<10	<91
WKARW22	TM-14-66669	<10	<91
WKARW23	TM-14-66670	<10	<91
WKARW24	TM-14-66671	<10	<91
WKARW25	TM-14-66672	24	217
WKARW26**	TM-14-66673	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Back for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 11656  
Page 2 of 2



US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

150 N. Chicago Street, Kenosha, WI 53140  
Tel: (262) 396-3443 Fax: (262) 396-3444

**Non-Responsive**

Client: Kenosha Armory  
Project: BPW  
Location: Kenosha, WI  
City: Kenosha  
State: WI

Field Use Only  
Project Number: 106649  
Site ID: 106649  
Sample Number: 106649  
Collection Date: 3/20/14  
Collection Time: 10:00 AM  
Collection Location: Field Blank  
Collection Method: Field Blank  
Collection Notes: Field Blank

Sample Location / Description: Field Blank

Sample ID: 106649

Sample Date: 3/20/14

Sample Time: 10:00 AM

Sample Location: Field Blank

Sample Method: Field Blank

Sample Notes: Field Blank

**Non-Responsive**



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

ARNG-CSG-P

July 23, 2015

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Kenosha Armory, Kenosha, WI

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive** Industrial Hygiene Technician (IHT) and **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on June 30, 2015 at the Wisconsin Army National Guard Kenosha Armory, 4200 43rd St, Kenosha, WI. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Kenosha Armory was built in 1987 and it has about 29,185 square feet of floor space. The armory is the base of operations for Bravo Co 257<sup>th</sup> BSB. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Kenosha Armory had an indoor firing range (IFR) that was closed and converted to a combatives room and a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include Civil Air Patrol meetings and an adult karate class. The industrial hygiene survey included a walkthrough of the facility and interviews with employees. Site personnel reported that no asbestos or lead paint surveys have been performed, and none are required based on the age of the building.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the nine surface wipe sample results exceeded the guideline for lead. The following actions are required:

- Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title
A.	Laboratory Result Reports and Chain of Custody Sheets



### Kenosha Armory

#### Lead – Wipe Sampling








##### Surface Area Wipe Samples



Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table 1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table 1, are considered significant. One of the nine surface wipe sample results exceeded the guideline for lead. Sample WKA32, which was collected on the floor in the weapons vault, had a lead concentration of 395 µg/ft<sup>2</sup>.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Kenosha Armory  
Kenosha, WI  
June 30, 2015

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200
WKA31	Drill Floor, on floor		16
WKA32	Weapons Vault, on floor		395
WKA33	Kitchen, table by microwave		<10
WKA34	Room 111, Civil Air Patrol room, on desk		<10
WKA35	Combatives area, former IFR, SW corner at bullet trap on floor		87
WKA36	Combatives area, former IFR, NW wall at bullet trap on floor		132
WKA37	Locker Room, former IFR, midrange on floor		75

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WKA38	Locker Room, former IFR, SE corner at firing line on floor		19
WKA39	Locker Room, former IFR, NE corner at firing line on floor		44
WKA40	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

#### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

**Laboratory Result Reports and Chain of Custody Sheets**

**Non-Responsive**

**Non-Responsive**



Non-Responsive

Non-Responsive

COMMENTS:

\* Applied to org

Non-Responsive

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

ARNG-CSG-P

April 16, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Madison Armory, Madison, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on January 23, 2014 at the Wisconsin Army National Guard Madison Armory, 1954 Pearson Street, Madison, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Madison Armory is the base of operations for Alpha Detachment 1 and HHC 147<sup>th</sup> Command. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Madison Armory had an indoor firing range (IFR) that was closed in 2007 and converted to a women's locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Wisconsin Department of Emergency Management meetings, Wisconsin law enforcement meetings, and the Hundred Black Men of Madison activities which include preparing and filling backpacks for local school children. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guideline for lead. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Madison Armory. Twenty-one of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Lead – Wipe Sampling

#### Surface Area Wipe Samples



Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Madison Armory had an indoor firing range (IFR) that was closed in 2007 and converted to a women's locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.




The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guideline for lead.

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Madison Armory  
Madison, Wisconsin  
January 23, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
<b>Surface Guideline</b>			<b>200</b>
WIMNW1	Women's Locker Room, Former IFR, at Bullet Trap, on Floor		<91
WIMNW2	Women's Locker Room, Former IFR, Firing Line, on Floor		<91

A-1

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WIMNW3	Kitchen, on Serving Table		<91
WIMNW4	Drill Floor, Center, on Floor		<91
WIMNW5	Room 128, Vault, on Floor		124
WIMNW6	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Madison, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11568  
DFOH Lab Nos.: TM-14-85961 through TM-14-85966  
Date Received: 01/24/14  
Data Analyzed: 01/27/14  
Date Issued: 01/30/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11568  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIMNW1	TM-14-65961	<10	<91
WIMNW2	TM-14-65962	<10	<91
WIMNW3	TM-14-65963	<10	<91
WIMNW4	TM-14-65964	<10	<91
WIMNW5	TM-14-65965	14	124
WIMNW6**	TM-14-65966	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Back for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive

M  
T



Project 11568  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: January 23, 2014

Madison Armory  
Madison, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

ID #		Type	Method	Collected Date	Time	Sample Location / Description	Row (Lm)	Time (Min)	Volume (L)	Wipe Area (ft <sup>2</sup> )	Wipe Volume (L)	Turns Around	Lab ID #
Non-Responsive													
Agreement No.: A 106644 Statement of Work No.: S 180648 Project No.: P 189649 Agency: WTRAC Project Manager: Madison Armory Location: Madison, WI (City, State): For Lab Use Only Project Report #: 11508 Date: 1/23/14 Samples Received: YES Container Types: STD - Standard 3D - Three Day Rust WH - Weekend Holiday Preservatives: Aqueous, B <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH Conditions on Receipt with Name & Date Analyzed:													
W1MNU1	7	S	1/23/14						100 cm <sup>2</sup>				7M-14-105910.1
W1MNU2													105910.2
	3												105910.3
	4												105910.4
	5												105910.5
	6					Field Blank							105910.6
COMMENTS: Applied to organic and inorganic analysis in cases of an emergency only. Applied to inorganic and organic samples. STD: Applied to organic and inorganic samples 7-10 business days.													

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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Marshfield Armory, Marshfield, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 10, 2014 at the Wisconsin Army National Guard Marshfield Armory, 319 W. 29<sup>th</sup> St, Marshfield, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Marshfield Armory is the base of operations for Battery A, 1<sup>st</sup> Battalion, 120<sup>th</sup> Field Artillery. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Marshfield Armory had an indoor firing range (IFR) that was closed in 2008 and converted to a fitness room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Boy Scout meetings; race headquarters for 5K races; and Red Cross blood drives. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Marshfield Armory. Eight of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

The Marshfield Armory has two tailpipe local exhaust ventilation (LEV) systems in the maintenance bay. Site personnel could not lower the flexible ducts for the LEV systems so that they could be tested.

- **If the armory performs vehicle maintenance that requires testing or running engines in the maintenance bay, the tailpipe LEV ventilation exhaust systems should be repaired and tested (RAC 2).**

For any further questions, please contact **Non-Responsive**.

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

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## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Marshfield Armory had an indoor firing range (IFR) that was closed in 2008 and converted to a fitness room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.

#### Recommendations:





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Marshfield Armory  
Marshfield, Wisconsin  
October 10, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMARW1	Fitness room, former IFR, behind firing line on floor		<10	<1.0
WMARW2	Fitness room, former IFR, at firing line on floor		<10	<1.0
WMARW3	Fitness room, former IFR, midrange on floor		<10	<1.0
WMARW4	Fitness room, former IFR, at bullet trap, NW corner on floor		<10	<1.0
WMARW5	Fitness room, former IFR, at bullet trap, NE corner on floor		<10	<1.0
WMARW6	Drill floor, center on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMARW7	Kitchen, on food prep table		<10	5.1
WMARW8	Maintenance bay, on flammable liquid storage cabinet		76	<1.0
WMARW9	Supply room, outside vault door		16	<1.0
WMARW10	Room 108, Classroom, on desktop		<10	<1.0
WMARW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Marshfield, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12224  
DFOH Lab Nos.: TM-15-74589 through TM-15-74599  
Date Received: 10/14/14  
Data Analyzed: 10/22/14 – 10/23/14  
Date Issued: 10/23/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12224  
Page 1 of 2

**FOH ENVIRONMENTAL LABORATORY**

538 S. 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 <sup>2</sup> )
WMARW1	TM-15-74589	<10	<10
WMARW2	TM-15-74590	<10	<10
WMARW3	TM-15-74591	<10	<10
WMARW4	TM-15-74592	<10	<10
WMARW5	TM-15-74593	<10	<10
WMARW6	TM-15-74594	<10	<10
WMARW7	TM-15-74595	<10	<10
WMARW8	TM-15-74596	76	76
WMARW9	TM-15-74597	16	16
WMARW10	TM-15-74598	<10	<10
WMARW11**	TM-15-74599	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WMARW1	TM-15-74589	<1.0	<1.0
WMARW2	TM-15-74590	<1.0	<1.0
WMARW3	TM-15-74591	<1.0	<1.0
WMARW4	TM-15-74592	<1.0	<1.0
WMARW5	TM-15-74593	<1.0	<1.0
WMARW6	TM-15-74594	<1.0	<1.0
WMARW7	TM-15-74595	5.1	5.1
WMARW8	TM-15-74596	<1.0	<1.0
WMARW9	TM-15-74597	<1.0	<1.0
WMARW10	TM-15-74598	<1.0	<1.0
WMARW11**	TM-15-74599	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12224**  
**Page 2 of 2**

Industrial Hygiene Survey  
Survey date: October 10, 2014

Marshfield Armory  
Marshfield, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

538 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-895-0413 Fax: (312)-896-0434				Agreement No.: <b>A 106644</b> Statement of Work No.: <b>S 184441</b> Project No.: <b>P 184442</b> Agency: <b>WIARNG</b> Proj. Manager: Location: <b>Marshfield Armory</b> (City, State): <b>Marshfield, WI</b>		For Lab Use Only Project / Report #: <b>12284</b> Due Date: <b>10/20/14</b> Samples Received Chilled? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> (circle one) Conditions on Receipt with Name & Date Rev: 6/1/2013								
<b>Non-Responsive</b>				Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH		STD- Standard 3D- Three Day Rush® WH Weekend/Holiday*								
ID #	Type¹	Media²	Collected Date Time	Sample Location / Description	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft²)	Volume (Liters)	Code³	Turn Around Time*	Lab ID #	Lead	Cadmium
WMARWI	7	5	10/10/14					1				TM-15-74589		
2												74590		
3												74591		
4												74592		
5												74593		
6												74594		
7												74595		
8												74596		
9												74597		
10												74598		
✓ 11	✓	✓	✓	Field blank				-				✓ 74599	✓	✓
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.8 um, 37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other				<b>Non-Responsive</b>						
COMMENTS: samples are 1 square foot														

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Medford Armory, Medford, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 9, 2014 at the Wisconsin Army National Guard Medford Armory, 630 Jensen, Medford, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Medford Armory is the base of operations for the 273<sup>rd</sup> Engineer Company (Sapper). During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Medford Armory had an indoor firing range (IFR) that was closed in 1992 and converted to a locker room and the platoon office. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include serving as a food pantry distribution site. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WMEDW5, which was collected on the floor in the platoon office, at the northeast corner of the bullet trap of the former IFR, had a lead concentration of 509 µg/ft<sup>2</sup>.

The following actions are required:



- Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

A lighting survey was conducted in the shops and offices in the Medford Armory. Six of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Medford Armory had an indoor firing range (IFR) that was closed in 1992 and converted to a locker room and the platoon office. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.


The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WMEDW5, which was collected on the floor in the platoon office, at the northeast corner of the bullet trap of the former indoor firing range, had a lead concentration of 509 µg/ft<sup>2</sup>.





#### Recommendations:

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Medford Armory  
Medford, Wisconsin  
October 9, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMEDW1	Locker room, former IFR, behind firing line on floor		<10	<1.0
WMEDW2	Locker room, former IFR, at firing line on floor		<10	<1.0
WMEDW3	Locker room, former IFR, midrange on floor		12	<1.0
WMEDW4	Platoon office, former IFR, at bullet trap, NW corner on floor		111	1.5
WMEDW5	Platoon office, former IFR, at bullet trap, NE corner on floor		<b>509</b>	3.0
WMEDW6	Drill floor, center on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMEDW7	Kitchen, on counter top		<10	<1.0
WMEDW8	Vault, on floor		86	8.1
WMEDW9	Supply office, on table near entrance		<10	1.5
WMEDW10	Classroom, on desk top		<10	<1.0
WMEDW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Medford, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12219  
DFOH Lab Nos.: TM-15-74534 through TM-15-74544  
Date Received: 10/14/14  
Data Analyzed: 10/21/14 – 10/22/14  
Date Issued: 10/22/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12219  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WMEDW1	TM-15-74534	<10	<10
WMEDW2	TM-15-74535	<10	<10
WMEDW3	TM-15-74536	12	12
WMEDW4	TM-15-74537	111	111
WMEDW5	TM-15-74538	509	509
WMEDW6	TM-15-74539	<10	<10
WMEDW7	TM-15-74540	<10	<10
WMEDW8	TM-15-74541	86	86
WMEDW9	TM-15-74542	<10	<10
WMEDW10	TM-15-74543	<10	<10
WMEDW11**	TM-15-74544	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WMEDW1	TM-15-74534	<1.0	<1.0
WMEDW2	TM-15-74535	<1.0	<1.0
WMEDW3	TM-15-74536	<1.0	<1.0
WMEDW4	TM-15-74537	1.5	1.5
WMEDW5	TM-15-74538	3.0	3.0
WMEDW6	TM-15-74539	<1.0	<1.0
WMEDW7	TM-15-74540	<1.0	<1.0
WMEDW8	TM-15-74541	8.1	8.1
WMEDW9	TM-15-74542	1.5	1.5
WMEDW10	TM-15-74543	<1.0	<1.0
WMEDW11**	TM-15-74544	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12219  
Page 2 of 2



**U.S. PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

514 N. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 887-0413 Fax: (312) 886-0134		Agreement No.: <b>A 104444</b> Statement No.: <b>S 104441</b> Project No.: <b>P 184442</b> Agency: <b>WIARNG</b> Proj. Manager: <b>Medford Armory</b> Location (City, State): <b>Medford, WI</b>	For Lab Use Only Project/Report #: <b>12219</b> Due Date: <b>10/29/14</b> Samples Received On/Off: <b>YES</b> Container Types: P-Plastic, G-Glass, V-VOL Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH STD-Standard SD-Three Day Rush® WH-Weekend/Holiday*
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Non-Responsive

ID #	Type	Sample		Sample Location / Description	Air		Wipe		Water		Turn Around Time*	Lab ID #	Lead	Cadmium
		Weight	Volume		Flow (LPM)	Time (Min)	Area (m²)	Volume (Liters)	Code					
WMEDW1	7	5	10/9/14					1				7445-74534		
	2											74535		
	3											74536		
	4											74537		
	5											74538		
	6											74539		
	7											74540		
	8											74541		
	9											74542		
	10											74543		
✓	11	✓	✓	Field blank				-				✓ 74544	✓	✓

Non-Responsive

**COMMENTS:** samples are 1 square foot

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Merrill Armory, Merrill, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive** Certified Industrial Hygienist (CIH), conducted a survey on October 8, 2014 at the Wisconsin Army National Guard Merrill Armory, 106 Memorial Drive, Merrill, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Merrill Armory is the base of operations for Detachment 1 Headquarters and Headquarters Company 32 Brigade Special Troops Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Merrill Armory had an indoor firing range (IFR) that was closed in 1989 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include garage sales sponsored by the Humane Society. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WMEW9, which was collected on the floor in the vault, had a lead concentration of 286  $\mu\text{g}/\text{ft}^2$  and a cadmium concentration of 70  $\mu\text{g}/\text{ft}^2$ . The following actions are required:

- Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

A lighting survey was conducted in the shops and offices in the Merrill Armory. Twelve of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).

For any further questions, please contact **Non-Responsive**

.

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Merrill Armory had an indoor firing range (IFR) that was closed in 1989 and converted to a locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WMEW9, which was collected on the floor in the vault, had a lead concentration of 286 µg/ft<sup>2</sup> and a cadmium concentration of 70 µg/ft<sup>2</sup>.





#### Recommendations:

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Merrill Armory  
Merrill, Wisconsin  
October 8, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMEW1	Locker room, former IFR, behind firing line on floor		<10	<1.0
WMEW2	Locker room, former IFR, at firing line on floor		14	1.5
WMEW3	Locker room, former IFR, midrange on floor		<10	<1.0
WMEW4	Locker room, former IFR, at bullet trap, NE corner on floor		66	6.4
WMEW5	Locker room, former IFR, at bullet trap, SE corner on floor		<10	5.0
WMEW6	Drill floor, center on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMEW7	Kitchen, on microwave		<10	<1.0
WMEW8	Room 10B, Classroom, on desktop		<10	<1.0
WMEW9	Vault, on floor		<b>286</b>	<b>70</b>
WMEW10	Readiness NCO office, on desktop		<10	<1.0
WMEW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Merrill, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12215  
DFOH Lab Nos.: TM-14-74490 through TM-14-74500  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 10/21/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12215  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WMEW1	TM-14-74490	<10	<10
WMEW2	TM-14-74491	14	14
WMEW3	TM-14-74492	<10	<10
WMEW4	TM-14-74493	66	66
WMEW5	TM-14-74494	<10	<10
WMEW6	TM-14-74495	<10	<10
WMEW7	TM-14-74496	<10	<10
WMEW8	TM-14-74497	<10	<10
WMEW9	TM-14-74498	286	286
WMEW10	TM-14-74499	<10	<10
WMEW11**	TM-14-74500	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WMEW1	TM-14-74490	<1.0	<1.0
WMEW2	TM-14-74491	1.5	1.5
WMEW3	TM-14-74492	<1.0	<1.0
WMEW4	TM-14-74493	6.4	6.4
WMEW5	TM-14-74494	5.0	5.0
WMEW6	TM-14-74495	<1.0	<1.0
WMEW7	TM-14-74496	<1.0	<1.0
WMEW8	TM-14-74497	<1.0	<1.0
WMEW9	TM-14-74498	70	70
WMEW10	TM-14-74499	<1.0	<1.0
WMEW11**	TM-14-74500	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive**



Project 12215  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: October 8, 2014

Merrill Armory  
Merrill, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

1600 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 885-6800 Fax: (312) 885-6134				Agreement No. <b>A 106644</b> Status No. <b>S 100001</b> Project No. <b>P 184772</b> Agency <b>WIARNG</b> Proj. Manager <b>Merrill Armory</b> Location <b>Merrill, WI</b> (City, State):		Free Lab. Use Only Project/Report # <b>18915</b> Due Date <b>10/20/14</b> Samples Received On/Off? <b>YES</b> (circle one) Container Type: <b>P-Plastic, G-Glass, V-VOC</b> Preservative: <b>A-None, B-H<sub>2</sub>SO<sub>4</sub>, C-HNO<sub>3</sub>, D-NaOH</b> BTU: <b>Standard</b> SD: <b>Three Day Rush*</b> WH: <b>Weekend/Holiday*</b>		Conditions on Receipt with Name & Date Signature: _____ Date: _____							
<div style="background-color: black; color: red; font-weight: bold; padding: 10px; text-align: center;">Non-Responsive</div>				Turn Around Time*		Lab ID #		Lead Cadmium							
				Turn Around Time*		Lab ID #		Lead Cadmium							
ID #	Type	Media	Collected		Sample Location / Description	Air		Wipe		Water		Turn Around Time*	Lab ID #	Lead	Cadmium
			Date	Time		Flow (LPM)	Time (Min.)	Volume (Liters)	Area (m <sup>2</sup> )	Volume (Liters)	Code				
WMEW1	7	5	10/8	14				1				74490			
2	1											74491			
3	1											74492			
4	1											74493			
5	1											74494			
6	1											74495			
7	1											74496			
8	1											74497			
9	1											74498			
10	1											74499			
11	7	5	10/8	14	Field blank							74500	✓	✓	

1-Air 2-Water 3-Paint 4-Soil 5-Dust  
6-Bulk 7-Wipe 8-Other

1-Charcoal 2-Matched Weight, 0.8um  
3-PVC filter 4-M CE 0.8 um, 37 mm  
5-Ghost Wipes™ 6-Passive badge  
7-Other

COMMENTS: *samples are 1 square foot*

Non-Responsive

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

April 16, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Milwaukee Armory, Milwaukee, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on January 24, 2014 at the Wisconsin Army National Guard Milwaukee Armory, 4108 N. Richards Street, Milwaukee, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Milwaukee Armory was built in 1927. The facility has about 126,475 square feet of floor space. The armory is the base of operations for 32<sup>nd</sup> MP, HHB 121, and 157<sup>th</sup> MEB. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Milwaukee Armory had an indoor firing range (IFR) that has been closed and converted to MP offices and classrooms. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: GED graduation ceremonies, ROTC, and the VA Stand Down. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guideline for lead. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Milwaukee Armory. Twenty-four of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached



**Appendix A**  
**Lead – Wipe Sampling****Surface Area Wipe Samples**



Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Milwaukee Armory had an indoor firing range (IFR) that has been closed and converted to MP offices and classrooms. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).




The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guideline for lead.

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Milwaukee Armory  
Milwaukee, Wisconsin  
January 24, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
<b>Surface Guideline</b>			<b>200</b>
WMIAW21	MP Office, Former IFR, at Bullet Trap, on Floor		<91
WMIAW22	MP Office, Former IFR, at Firing Line, on Floor		<91

A-1



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WMIAW23	Vault 8, on Floor		<91
WMIAW24	Kitchen, on Top of Oven		<91
WMIAW25	Drill Floor, on Floor		<91
WMIAW26	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Milwaukee, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11576  
DFOH Lab Nos.: TM-14-88006 through TM-14-88011  
Date Received: 01/29/14  
Data Analyzed: 01/30/14  
Date Issued: 01/30/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11576  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WMIAW21	TM-14-66006	<10	<91
WMIAW22	TM-14-66007	<10	<91
WMIAW23	TM-14-66008	<10	<91
WMIAW24	TM-14-66009	<10	<91
WMIAW25	TM-14-66010	<10	<91
WMIAW26**	TM-14-66011	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Back for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 11576  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: January 24, 2014

Milwaukee Armory  
Milwaukee, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

<b>Environmental Laboratory</b> 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434		<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement of Work No.: S 180648 Project No.: P 189649 Agency: WIARNG Proj. Manager: [blank] Location: MILWAUKEE ARMORY (City, State): MILWAUKEE, WI		<b>For Lab Use Only</b> Project / Report #: 11576 Due Date: 2/16/14 Samples Received Chilled? YES / NO (circle one) Water Sample Codes: [blank] Turn Around Time Codes: [blank] Analysis Requested: [blank]								
<b>Non-Responsive</b>		Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> to match		STD- Standard 3D- Three Day Rush WH Weekend/Holiday*								
		Turn Around Time Codes: [blank]		Analysis Requested: [blank]								
ID #	Type <sup>1</sup>	Media <sup>2</sup>	Collected Date Time	Sample Location / Description	Flow (LPM)	Time (Min)	Volume (Liters)	Area (ft <sup>2</sup> )	Volume (Liters)	Code <sup>3</sup>	Turn Around Time <sup>4</sup>	Lab ID #
WMIAW21	7	S	1/24/14									14-14-060006
WMIAW22												060007
WMIAW23												060008
WMIAW24												060009
WMIAW25												060010
WMIAW26				FIELD BLANK								060011
<b>Sample Type Codes</b> 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other					<b>Sample Media Codes</b> 1-Charcoal 2-Matched Weights 0.8um 3-PVC filter 4-M CE 0.8 um, 37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other					<b>Comments:</b>		
<b>Non-Responsive</b>												

\* Applied to organic and inorganic analysis in cases of an emergency only. \*\* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

**DRAFT**

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

ARNG-CSG-P

August 23, 2015

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Milwaukee Armory, Milwaukee, WI

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive** Industrial Hygiene Technician (IHT), and **Non-Responsive** Certified Industrial Hygienist (CIH), conducted a survey on July 1, 2015 at the Wisconsin Army National Guard Milwaukee Armory, 4108 N. Richards Street, Milwaukee, WI. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Milwaukee Armory was built in 1927. The facility has 126,475 square feet of floor space. The armory is the base of operations for HHC 157<sup>th</sup>, HHB 121<sup>st</sup>, and 32<sup>nd</sup> MP. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Milwaukee Armory had an indoor firing range (IFR) which was closed in 2008 and converted to 32<sup>nd</sup> MP offices and a classroom. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include GED graduation, the VA stand down, and ROTC groups. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Facility personnel reported that no records of asbestos or lead paint surveys were available for review at the site on the day of the survey. The following actions are required:

- **Based on the age of the building, an asbestos survey should be performed. Asbestos containing materials (ACM) should be identified and shop personnel should be informed of their location**



as required by 29 CFR 1910.1000(j)(2). The survey results should be maintained on site (RAC 2).

- Based on the age of the building, a lead paint survey should be performed. The survey results should be maintained on site (RAC 2).

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Two of the nine surface wipe sample results exceeded the guideline for lead. The following actions are required:

- The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup> (RAC 2).
- The ID card office should be cleaned up to meet the requirements of the WIARNG Prevention of Heavy Metal Contamination in WIARNG Facilities SOP (RAC 2).
- Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

For any further questions, please contact Non-Responsive

.

Non-Responsive

Non-Responsive

Regional Industrial Hygienist

Appendix	Title
A.	Laboratory Result Reports and Chain of Custody Sheets





### Milwaukee Armory

#### Lead – Wipe Sampling

##### **Surface Area Wipe Samples**

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table 1.






The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).





The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table 1, are considered significant. Two of the nine surface wipe sample results exceeded the guideline for lead. Sample WMIAW33, which was collected on the floor in the classroom (midrange in the former IFR), had

a lead concentration of 1,640  $\mu\text{g}/\text{ft}^2$  and sample WMIAW36, which was collected on the floor in the 157<sup>th</sup> weapons vault, had a lead concentration of 255  $\mu\text{g}/\text{ft}^2$ .

Sample WMIAW38 which was collected on the desktop in the ID card office had a lead concentration of 51  $\mu\text{g}/\text{ft}^2$ . On the day of the survey, a military spouse with several young children was waiting to get photos and ID cards. The ID card office should be cleaned up to meet the requirements of the WIARNG Prevention of Heavy Metal Contamination in WIARNG Facilities SOP.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Milwaukee Armory  
Milwaukee, WI  
July 1, 2015

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WMIAW31	SE corner at bullet trap on floor – former IFR		18
WMIAW32	NE corner at bullet trap on floor – former IFR		20
WMIAW33	SW wall, midrange on floor – former IFR		1,640
WMIAW34	SW corner at firing line on floor – former IFR		44
WMIAW35	NW corner at firing line on floor – former IFR		20

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WMIAW36	Weapons vault #5, 157 HHC		255
WMIAW37	Kitchen, on counter top		<10
WMIAW38	ID card office, on desk		51
WMIAW39	Drill Floor,		20
WMIAW40	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

- 1. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200  $\mu\text{g}/\text{ft}^2$  (RAC 2).**
- 2. The ID card office should be cleaned up to meet the requirements of the WIARNG Prevention of Heavy Metal Contamination in WIARNG Facilities SOP (RAC 2).**
- 3. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**
- 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).**

5. **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

**Laboratory Result Reports and Chain of Custody Sheets**

**Non-Responsive**

**Non-Responsive**

Non-Responsive





Non-Responsive

COMMENTS:

\* Applies to on

Non-Responsive

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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Mosinee Armory, Mosinee, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 9, 2014 at the Wisconsin Army National Guard Mosinee Armory, 1000 Jackson St, Mosinee, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Mosinee Armory is the base of operations for Company G, 132<sup>nd</sup> Brigade Support Battalion (FSC) and 1<sup>st</sup> Battalion, 120<sup>th</sup> Field Artillery. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Mosinee Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include serving as a polling place. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Mosinee Armory. Thirteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## **Appendix A**

### **Metals – Wipe Sampling**

#### **Surface Area Wipe Samples**

The Mosinee Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.


The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.





#### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Mosinee Armory  
Mosinee, Wisconsin  
October 9, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMOSW1	Locker room, former IFR, behind firing line on floor		25	1.4
WMOSW2	Locker room, former IFR, at firing line on floor		25	<1.0
WMOSW3	Locker room, former IFR, midrange on floor		25	1.3
WMOSW4	Locker room, former IFR, at bullet trap, NE corner on floor		12	<1.0
WMOSW5	Locker room, former IFR, at bullet trap, center on floor		109	7.2
WMOSW6	Vault, on floor		91	4.4

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WMOSW7	Drill floor, center on floor		<10	<1.0
WMOSW8	Kitchen, on counter top		<10	<1.0
WMOSW9	Classroom, on desktop		<10	<1.0
WMOSW10	Open office cubicles, on desktop		<10	<1.0
WMOSW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.





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

# Non-Responsive





## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WMOSW1	TM-15-74545	25	25
WMOSW2	TM-15-74546	25	25
WMOSW3	TM-15-74547	25	25
WMOSW4	TM-15-74548	12	12
WMOSW5	TM-15-74549	109	109
WMOSW6	TM-15-74550	91	91
WMOSW7	TM-15-74551	<10	<10
WMOSW8	TM-15-74552	<10	<10
WMOSW9	TM-15-74553	<10	<10
WMOSW10	TM-15-74554	<10	<10
WMOSW11**	TM-15-74555	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WMOSW1	TM-15-74545	1.4	1.4
WMOSW2	TM-15-74546	<1.0	<1.0
WMOSW3	TM-15-74547	1.3	1.3
WMOSW4	TM-15-74548	<1.0	<1.0
WMOSW5	TM-15-74549	7.2	7.2
WMOSW6	TM-15-74550	4.4	4.4
WMOSW7	TM-15-74551	<1.0	<1.0
WMOSW8	TM-15-74552	<1.0	<1.0
WMOSW9	TM-15-74553	<1.0	<1.0
WMOSW10	TM-15-74554	<1.0	<1.0
WMOSW11**	TM-15-74555	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12220  
Page 2 of 2

\* Applied to organic and inorganic analysis in cases of an emergency only. @ Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 8, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at New Richmond Armory, New Richmond, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 6, 2014 at the Wisconsin Army National Guard New Richmond Armory, 1424 Wall St, New Richmond, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The New Richmond Armory is the base of operations for Company B, 1<sup>st</sup> Battalion, 128<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The New Richmond Armory had an indoor firing range (IFR) that was closed in 2008 and converted to storage. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: the VFW, American Legion, WITC Swat Team, the DNR, Boy Scout meetings, and Red Cross blood drives. It also serves as a refuge for weather emergencies. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

Local exhaust ventilation surveys were conducted for the tailpipe exhaust systems. The tailpipe exhaust ventilation systems were not operational, and did not meet minimum guidelines. The following actions are required:

- **If maintenance activities require operating or idling vehicle engines in the bay areas, the tailpipe exhaust ventilation systems in both bays should be upgraded to meet the NGB Mid-West Regional IH Office minimum airflow rate of 800 cubic feet per minute (RAC 2).**

A lighting survey was conducted in the shops and offices in the New Richmond Armory. Eleven of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Ventilation	Attached
C.	Lighting	Attached

## **Appendix A**

### **Metals – Wipe Sampling**

#### **Surface Area Wipe Samples**

The New Richmond Armory had an indoor firing range (IFR) that was closed in 2008 and converted to storage. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).





The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.

#### **Recommendations:**





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
New Richmond Armory  
New Richmond, Wisconsin  
October 6, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WNRW1	Storage, former IFR, behind firing line on floor		<10	<1.0
WNRW2	Storage, former IFR, at firing line on floor		<10	<1.0
WNRW3	Storage, former IFR, midrange on floor		<10	<1.0
WNRW4	Storage, former IFR, at bullet trap, NW corner on floor		<10	<1.0
WNRW5	Storage, former IFR, at bullet trap, NE corner on floor		33	<1.0
WNRW6	Fitness room, on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WNRW7	Vault, on floor		74	2.0
WNRW8	Drill floor, center on floor		<10	<1.0
WNRW9	Kitchen, on prep table		<10	<1.0
WNRW10	Room 114, Classroom, on tabletop		<10	<1.0
WNRW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

**Reference Data:** Lead and Cadmium  
Sampling Site: NGB: New Richmond, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12213  
DFOH Lab Nos.: TM-14-74468 through TM-14-74478  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 10/21/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



**Project 12213  
Page 1 of 2**



## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WNRW1	TM-14-74468	<10	<10
WNRW2	TM-14-74469	<10	<10
WNRW3	TM-14-74470	<10	<10
WNRW4	TM-14-74471	<10	<10
WNRW5	TM-14-74472	33	33
WNRW6	TM-14-74473	<10	<10
WNRW7	TM-14-74474	74	74
WNRW8	TM-14-74475	<10	<10
WNRW9	TM-14-74476	<10	<10
WNRW10	TM-14-74477	<10	<10
WNRW11**	TM-14-74478	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WNRW1	TM-14-74468	<1.0	<1.0
WNRW2	TM-14-74469	<1.0	<1.0
WNRW3	TM-14-74470	<1.0	<1.0
WNRW4	TM-14-74471	<1.0	<1.0
WNRW5	TM-14-74472	<1.0	<1.0
WNRW6	TM-14-74473	<1.0	<1.0
WNRW7	TM-14-74474	2.0	2.0
WNRW8	TM-14-74475	<1.0	<1.0
WNRW9	TM-14-74476	<1.0	<1.0
WNRW10	TM-14-74477	<1.0	<1.0
WNRW11**	TM-14-74478	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12213  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: October 6, 2014

New Richmond Armory  
New Richmond, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

539 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				Agreement No.: A 106644 Statement: S 104441 Project No.: P 184442 Agency: WIARNG Proj. Manager: New Richmond Armory Location (City, State): New Richmond, WI		For Lab. Use Only Project/Report #: 12213 Due Date: 10/22/14 Samples Received Chilled? YES (circle one) Conditions on Receipt with Name & Date:									
<b>Non-Responsive</b>				Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH		STD- Standard 3D- Three Day Rush® WH Weekend/Holiday*		Lead Cadmium							
ID #	Type <sup>1</sup>	Media <sup>2</sup>	Collected Date	Time	Sample Location / Description	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft²)	Volume (Liters)	Code <sup>3</sup>	Turn Around Time <sup>4</sup>	Lab ID #	Lead	Cadmium
WNRW1	7	5	10/6/14							1			M-15-74468		
2													74469		
3													74470		
4													74471		
5													74472		
6													74473		
7													74474		
8													74475		
9													74476		
10													74477		
↓	11	↓	↓	↓	Field blank					-			74478	↓	↓
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other 1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.8 um, 37 mm 5-Ghost Wipes™ 6. Passive badge 7. Other															
COMMENTS: samples are 1 square foot															

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

October 1, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Oshkosh Armory, Oshkosh, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on August 6, 2014 at the Wisconsin Army National Guard Oshkosh Armory, 1415 Armory Place, Oshkosh, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Oshkosh Armory was built in 1962 and it has about 22,424 square feet of floor space. The armory is the base of operations for the 1157<sup>th</sup> Transportation Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Oshkosh Armory had an indoor firing range (IFR) that was closed in 2010. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Boy and Girl Scout meetings; Civil Air Patrol activities during the Experimental Aircraft Association fly in; VFW meetings; and holiday parties for families. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Two of the surface wipe sample results exceeded the guideline for lead. A sample collected on a flammable liquid storage cabinet in the maintenance bay had a lead concentration of 717  $\mu\text{g}/\text{ft}^2$ . A sample collected on the floor in the supply mechanical room at the firing line in the former IFR had a lead concentration of 400  $\mu\text{g}/\text{ft}^2$ . The following actions are required:



- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Oshkosh Armory. Thirteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached

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## Appendix A

### Lead – Wipe Sampling

#### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Two of the surface wipe sample results exceeded the guideline for lead. Sample WOAW13, which was collected on a flammable liquid storage cabinet in the maintenance bay, had a lead concentration of 717 µg/ft<sup>2</sup>. Sample WOAW14, which was collected on the floor in the supply mechanical room at the firing line in the former indoor firing range, had a lead concentration of 400 µg/ft<sup>2</sup>.





#### Recommendations:

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Oshkosh Armory  
Oshkosh, Wisconsin  
August 6, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WOAW11	Vault 1, on floor		41
WOAW12	Vault 2, on floor		60
WOAW13	Maintenance bay, on flammable liquid storage cabinet		717
WOAW14	Room 19, Supply mechanical room, former IFR, at firing line, on floor		400
WOAW15	Room 18, Supply room, former IFR, at firing line, on floor		66
WOAW16	Fitness room, former IFR, at bullet trap, west wall, on floor		<10

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WOAW17	Fitness room, former IFR, at bullet trap, northwest corner, on floor		<10
WOAW18	Fitness room, former IFR, at bullet trap, center, on floor		<10
WOAW19	Fitness room, former IFR, at bullet trap, south wall adjacent to gun racks, on floor		50
WOAW20	Kitchen, on prep table adjacent to sink		<10
WOAW21	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Oshkosh, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11965  
DFOH Lab Nos.: TM-14-70469 through TM-14-70479  
Date Received: 08/11/14  
Data Analyzed: 08/12/14 – 08/13/14  
Date Issued: 08/13/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame and/or Perkin Elmer 600 furnace atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11965  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WOAW11	TM-14-70469	41	41
WOAW12	TM-14-70470	60	60
WOAW13	TM-14-70471	717	717
WOAW14	TM-14-70472	400	400
WOAW15	TM-14-70473	66	66
WOAW16	TM-14-70474	<10	<10
WOAW17	TM-14-70475	<10	<10
WOAW18	TM-14-70476	<10	<10
WOAW19	TM-14-70477	50	50
WOAW20	TM-14-70478	<10	<10
WOAW21**	TM-14-70479	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft <sup>2</sup>	250 µg/ft <sup>2</sup>	400 µg/ft <sup>2</sup>

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead - Flame AA	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Lead - Furnace AA	OSHA ID-121	0.25 µg/ft <sup>2</sup>	0.50 µg/ft <sup>2</sup>

Non-Responsive



Project 11965  
Page 2 of 2



Industrial Hygiene Survey  
Survey date: August 6, 2014

Oshkosh Armory  
Oshkosh, WI

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET																																																																																																																																																																																																										
<b>Environmental Laboratory</b> 526 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement of Work No.: S 180648 Project No.: P 189649 Agency: WIARNG Proj. Manager: Location: Oshkosh Armory (City, State): Oshkosh, WI				<b>For Lab Use Only</b> Project Report #: 11965 Due Date: 8/19/14 Samples Received Chilled? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (circle one) Water Sample Codes: Container Types: STD- Standard P-Plastic, G-Glass, V-VOC 3D- Three Day Rush WH Weekend/Holiday Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH Turn Around Time Codes: Analysts Requested:																																																																																																																																																																																																		
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<table border="1" style="width: 100%;"> <thead> <tr> <th rowspan="2">ID #</th> <th rowspan="2">Type<sup>1</sup></th> <th rowspan="2">Media<sup>2</sup></th> <th colspan="2">Collected</th> <th rowspan="2">Sample Location / Description</th> <th colspan="2">Air</th> <th colspan="2">Wipe</th> <th colspan="2">Water</th> <th rowspan="2">Turn Around Time<sup>3</sup></th> <th rowspan="2">Lab ID #</th> <th rowspan="2">LEAD</th> </tr> <tr> <th>Date</th> <th>Time</th> <th>Flow (LPM)</th> <th>Time (Min.)</th> <th>Volume (Liters)</th> <th>Area (ft<sup>2</sup>)</th> <th>Volume (Liters)</th> <th>Code<sup>4</sup></th> </tr> </thead> <tbody> <tr> <td>WOAW11</td> <td>7</td> <td>5</td> <td>8/6/14</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>70470</td> <td></td> </tr> <tr> <td>12</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70471</td> <td></td> </tr> <tr> <td>13</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70472</td> <td></td> </tr> <tr> <td>14</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70473</td> <td></td> </tr> <tr> <td>15</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70474</td> <td></td> </tr> <tr> <td>16</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70475</td> <td></td> </tr> <tr> <td>17</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70476</td> <td></td> </tr> <tr> <td>18</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70477</td> <td></td> </tr> <tr> <td>19</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70478</td> <td></td> </tr> <tr> <td>20</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td>70479</td> <td></td> </tr> <tr> <td>✓ 21</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td>Field blank</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>✓ 70479</td> <td>✓</td> </tr> </tbody> </table>															ID #	Type <sup>1</sup>	Media <sup>2</sup>	Collected		Sample Location / Description	Air		Wipe		Water		Turn Around Time <sup>3</sup>	Lab ID #	LEAD	Date	Time	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft <sup>2</sup> )	Volume (Liters)	Code <sup>4</sup>	WOAW11	7	5	8/6/14					1					70470		12													70471		13													70472		14													70473		15													70474		16													70475		17													70476		18													70477		19													70478		20								✓					70479		✓ 21	✓	✓	✓		Field blank			-					✓ 70479	✓
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<b>Sample Type Codes</b> 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				<b>Sample Media Codes</b> 1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.5 um .37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other				<b>Relinquished By:</b>		<b>Date &amp; Time:</b>		<b>Received By:</b>		<b>Date &amp; Time:</b>																																																																																																																																																																																												
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COMMENTS: 1 square foot samples																																																																																																																																																																																																										

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

August 31, 2015

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Oshkosh Armory, Oshkosh, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on June 25, 2015 at the Wisconsin Army National Guard Oshkosh Armory, 1415 Armory Place, Oshkosh, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Oshkosh Armory was built in 1962. The facility has 22,424 square feet of floor space. The armory is the base of operations for the 1157<sup>th</sup> Transportation Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. Site personnel reported that the Oshkosh Armory had an indoor firing range (IFR) that was closed in 2010 and converted to a fitness room, supply room, and mechanical room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

No asbestos or lead paint surveys were available for review on the day of the survey. The following actions are required:

- **Based on the age of the building, an asbestos survey should be performed. Asbestos containing materials (ACM) should be identified and shop personnel should be informed of their location as required by 29 CFR 1910.1000(j)(2) (RAC 2).**
- **Based on the age of the building, a lead paint survey should be performed. The survey results should be maintained on the site (RAC 2).**

The armory is available for rental for community activities that include: Boy and Girl Scouts meetings and the Civil Air Patrol. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the nine surface wipe sample results exceeded the guideline for lead. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title
A.	Laboratory Result Reports and Chain of Custody Sheets



### Oshkosh Armory

#### Lead – Wipe Sampling





##### **Surface Area Wipe Samples**




Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table 1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table 1, are considered significant. None of the nine surface wipe sample results exceeded the guideline for lead.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Oshkosh Armory  
Oshkosh, Wisconsin  
June 25, 2015

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WOAW31	Communications vault, on floor		148
WOAW32	Weapons vault, on floor		188
WOAW33	Fitness room, former IFR at bullet trap, NW corner on floor		<10
WOAW34	Fitness room, former IFR at bullet trap, SW corner on floor		<10
WOAW35	Storage room, former IFR midrange, west side center on floor		<10
WOAW36	Mechanical room, former IFR at firing line, on floor		21

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WOAW37	Entry to storage room, former IFR at firing line, on floor		<10
WOAW38	Room #21, Classroom on table top		<10
WOAW39	Kitchen, on counter top		<10
WOAW40	Field blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USFPO for Maryland  
320274 SMR 301 Old Bay Lane  
Havre de Grace, MD 21078

Attention: COL Randy Fritz / Mr. Andrew Lucas, CIH

Submitted By: Ms. Michelle C. Stemmons

Reference Data: Lead  
Sampling Site: NGB: Oshkosh, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12904  
DFOH Lab Nos.: TM-15-80965 through TM-15-80974  
Date Received: 06/30/15  
Date Analyzed: 06/30/15  
Date Issued: 07/01/15

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Ms. Edna A. Bautista  
Technical Manager

Ms. Michelle C. Stemmons  
Laboratory Director



Project 12904  
Page 1 of 2

**FOH ENVIRONMENTAL LABORATORY**

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

**LEAD on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WOAW31	TM-15-80965	148	148
WOAW32	TM-15-80966	188	188
WOAW33	TM-15-80967	<10	<10
WOAW34	TM-15-80968	<10	<10
WOAW35	TM-15-80969	<10	<10
WOAW36	TM-15-80970	21	21
WOAW37	TM-15-80971	<10	<10
WOAW38	TM-15-80972	<10	<10
WOAW39	TM-15-80973	<10	<10
WOAW40**	TM-15-80974	<10	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	200 for facilities (all surfaces)	NG Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006, <a href="http://www.ngbdc.ngb.army.mil/volts/420/napam420_15.pdf">http://www.ngbdc.ngb.army.mil/volts/420/napam420_15.pdf</a>
Lead	40 for any potentially child occupied areas of facility (all surfaces); used for armories with public access, family services offices, or other routine use by children	NG Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006, <a href="http://www.ngbdc.ngb.army.mil/volts/420/napam420_15.pdf">http://www.ngbdc.ngb.army.mil/volts/420/napam420_15.pdf</a>

**Metals in Wipe Limits  
(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead - Flame AA	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

  
 Ms. Edna A. Bautista  
 Technical Manager
Project 12904  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: June 25, 2015

Oshkosh Armory  
Oshkosh, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

535 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 885-0415 Fax: (312) 885-0434 Attn: Michelle Stearns		Agreement No.: A 106644 Statement of Work No.: S 188318 Project No.: P 188319 Agency: WIADWG Proj. Manager: Oshkosh Armory Location: Oshkosh, WI (City, State):		For Lab Use Only Project Report #: 12904 Due Date: 7/2/15 Samples Received Chilled? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> (circle one) Container Types: STD- Standard P- Plastic, G- Glass, V- VOC 3D- Three Day Rush WH- Weekend/Holiday Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH		Conditions on Receipt with Name & Date Rec: 070210	
Name: ANDREW LUCAS Address: 2477 PRISCILLA AVE NIAKAND PARK IL 60055 Phone/Fax: 247-4577-2722 Email: USIHLUCAS@AOL.COM		Sample ID # Type Media Collected Date Time Sample Location / Description		Air Flow (LPM) Time (Min) Volume (Liters) Area (ft <sup>2</sup> ) Volume (Liters) Code Turn Around Time		Lab ID #	
W0AW31 W0AW32 W0AW33 W0AW34 W0AW35 W0AW36 W0AW37 W0AW38 W0AW39 W0AW40		7 5 4/25/15 Field Blank		1 80965 80966 80967 80968 80969 80970 80971 80972 80973 80974		12904	
1-Air 2-Water 3-Fume 4-Soil 5-Dust 6-Bulk 7-Voice 8-Other		1-Chemical 2-Matched Weigh 0.0um 3-PVC Filter 4-MCE 0.8 um .87 mm 5-Clean Wipes 6-Positive badge 7-Other		Andrew Lucas 6-29-15 1800		6/30/15	
COMMENTS: 1 square ft wipe samples							

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 29, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Rhinelander Armory, Rhinelander, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 8, 2014 at the Wisconsin Army National Guard Rhinelander Armory, 1136 Military Rd, Rhinelander, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Rhinelander Armory is the base of operations for Detachment 1, 951<sup>st</sup> Engineer Company (Sapper). During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Rhinelander Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room, office, and maintenance bay. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include Lions Club Christmas dinners and use as a Boy Scouts popcorn distribution center. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Rhinelanders Armory. Fourteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

.

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A Metals – Wipe Sampling



### Surface Area Wipe Samples

The Rhinelanders Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room, office, and maintenance bay. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.


The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).


The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Rhinelanders Armory  
Rhinelanders, Wisconsin  
October 8, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
Surface Guideline			200	28
WRHIW1	Vault, on top of gun case		<10	<1.0
WRHIW2	Maintenance bay, former IFR, behind firing line on floor		117	2.2



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WRHIW3	Maintenance bay, former IFR, at firing line on floor		69	7.3
WRHIW4	Maintenance bay office, former IFR, midrange on floor		55	16
WRHIW5	Locker room, former IFR, at bullet trap, NW corner on floor		<10	<1.0
WRHIW6	Locker room, former IFR, at bullet trap, NE corner on floor		<10	<1.0
WRHIW7	Drill floor, center on floor		<10	<1.0
WRHIW8	Kitchen, on counter top		<10	<1.0
WRHIW9	Medical supplies office, on desktop		55	<1.0

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200	28
WRHIW10	Family readiness office, on desktop		<10	<1.0
WRHIW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

**Reference Data:** Lead and Cadmium  
Sampling Site: NGB: Rhinelanders, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12212  
DFOH Lab Nos.: TM-14-74457 through TM-14-74467  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 10/21/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



**Project 12212**  
**Page 1 of 2**



## FOH ENVIRONMENTAL LABORATORY

538 S. 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 <sup>2</sup> )
WRHIW1	TM-14-74457	<10	<10
WRHIW2	TM-14-74458	117	117
WRHIW3	TM-14-74459	69	69
WRHIW4	TM-14-74460	55	55
WRHIW5	TM-14-74461	<10	<10
WRHIW6	TM-14-74462	<10	<10
WRHIW7	TM-14-74463	<10	<10
WRHIW8	TM-14-74464	<10	<10
WRHIW9	TM-14-74465	55	55
WRHIW10	TM-14-74466	<10	<10
WRHIW11**	TM-14-74467	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WRHIW1	TM-14-74457	<1.0	<1.0
WRHIW2	TM-14-74458	2.2	2.2
WRHIW3	TM-14-74459	7.3	7.3
WRHIW4	TM-14-74460	16	16
WRHIW5	TM-14-74461	<1.0	<1.0
WRHIW6	TM-14-74462	<1.0	<1.0
WRHIW7	TM-14-74463	<1.0	<1.0
WRHIW8	TM-14-74464	<1.0	<1.0
WRHIW9	TM-14-74465	<1.0	<1.0
WRHIW10	TM-14-74466	<1.0	<1.0
WRHIW11**	TM-14-74467	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12212  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: October 8, 2014

Rhinelanders Armory  
Rhinelanders, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

438 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 885-0413 Fax: (312) 885-0434				Agreement No.: A 106644 Statement: S 104441 Project No.: P 184442 Agency: WIARNG Proj. Manager: Rhinelanders Armory Location: Rhinelanders, WI (City, State):		For Lab. Use Only Project / Report #: 12612 Due Date: 10/20/14 Samples Received Chilled? YES (circle one) Container Type: P - Plastic, G - Glass, M - VOC Preservatives: A - None, B - H <sub>2</sub> SO <sub>4</sub> , C - HNO <sub>3</sub> , D - NaOH STD - Standard SD - Three Day Rush® WH - Weekend/Holiday*				Conditions on Receipt: with Name & Date				
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>										Lead Cadmium				
ID #	Type	Sample		Sample Location / Description	Air		Wipe		Water		Turn Around Time	Lab ID #	Lead	Cadmium
		Material	Substrate		Flow (LPM)	Time (Min)	Volume (Liters)	Area (m²)	Volume (Liters)	Code				
WRHI W1	7	5	10/8/14					1				TM-15-74457		
2												74458		
3												74459		
4												74460		
5												74461		
6												74462		
7												74463		
8												74464		
9												74465		
10								✓				74466		
✓ 11	✓	✓	✓	Field blank				-				✓ 74467	✓	✓
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other 1-Charcoal 2-Matched Weight 0.3um 3-PVC filter 4-M 0.8um, 37mm 5-Ghost Wipes™ 6-Passive badge 7-Other														
COMMENTS: samples are 1 square foot														

\* Applied to organic and inorganic analysis in cases of an emergency only. ® Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

November 23, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Rice Lake Armory, Rice Lake, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 6, 2014 at the Wisconsin Army National Guard Rice Lake Armory, 308 East Barker Street, Rice Lake, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Rice Lake Armory was built in 1956. The armory is the base of operations for Company Bravo, 1<sup>st</sup> Battalion, 128<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Rice Lake Armory had an indoor firing range that was closed in 1994 and converted to a fitness room and storage area. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Toys for Tots distribution, Department of Corrections use, and 4-H archery practice. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WRLW10, which was collected on a workbench in the maintenance bay, had a lead concentration of 5,510 µg/ft<sup>2</sup>. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Rice Lake Armory. Eleven of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A Metals – Wipe Sampling



### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.


The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WRLW10, which was collected on a workbench in the maintenance bay, had a lead concentration of 5,510 µg/ft².

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Rice Lake Armory  
Rice Lake, Wisconsin  
October 6, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
Surface Guideline			200	28
WRLW1	Storage, former IFR, behind firing line on floor		188	3.3
WRLW2	Storage, former IFR, at firing line on floor		125	1.6

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WRLW3	Storage, former IFR, midrange on floor		42	<1.0
WRLW4	Storage, former IFR, at bullet trap, SE corner on floor		44	2.7
WRLW5	Storage, former IFR, at bullet trap, SW corner on floor		17	1.2
WRLW6	Vault, on floor		30	2.0
WRLW7	Kitchen, on prep table		<10	<1.0
WRLW8	Classroom 4, on table		<10	<1.0
WRLW9	Drill floor, center on floor		<10	<1.0

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200	28
WRLW10	Maintenance bay, on workbench		5,510	23
WRLW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

**Reference Data:** Lead and Cadmium  
Sampling Site: NGB: Rice Lake, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12211  
DFOH Lab Nos.: TM-14-74446 through TM-14-74456  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 10/21/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



**Project 12211  
Page 1 of 2**

**FOH ENVIRONMENTAL LABORATORY**

538 S. 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 <sup>2</sup> )
WRLW1	TM-14-74446	188	188
WRLW2	TM-14-74447	125	125
WRLW3	TM-14-74448	42	42
WRLW4	TM-14-74449	44	44
WRLW5	TM-14-74450	17	17
WRLW6	TM-14-74451	30	30
WRLW7	TM-14-74452	<10	<10
WRLW8	TM-14-74453	<10	<10
WRLW9	TM-14-74454	<10	<10
WRLW10	TM-14-74455	5510	5510
WRLW11**	TM-14-74456	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WRLW1	TM-14-74446	3.3	3.3
WRLW2	TM-14-74447	1.6	1.6
WRLW3	TM-14-74448	<1.0	<1.0
WRLW4	TM-14-74449	2.7	2.7
WRLW5	TM-14-74450	1.2	1.2
WRLW6	TM-14-74451	2.0	2.0
WRLW7	TM-14-74452	<1.0	<1.0
WRLW8	TM-14-74453	<1.0	<1.0
WRLW9	TM-14-74454	<1.0	<1.0
WRLW10	TM-14-74455	23	23
WRLW11**	TM-14-74456	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12211**  
**Page 2 of 2**



\* Applied to organic and inorganic analysis in cases of an emergency only. <sup>†</sup> Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 8, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at River Falls Armory, River Falls, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 6, 2014 at the Wisconsin Army National Guard River Falls Armory, 815 Division St, River Falls, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The River Falls Armory was built in 1957. The armory is the base of operations for Company D 1<sup>st</sup> Battalion 128<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The River Falls Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Girl and Boy Scout meetings, 4-H meetings and target practice (arrows and pellet guns), a polling place, and classroom use by the Department of Corrections. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the River Falls Armory. Eleven of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

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## Appendix A Metals – Wipe Sampling

### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1).

Site personnel reported that the 4-H club uses the drill floor for target practice with pellet guns and arrows. Wipe samples were collected in the backstop areas for the pellets. In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.







The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guidelines for toxic metals.





### Recommendations:

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
River Falls Armory  
River Falls, Wisconsin  
October 6, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WRFW1	Locker room, former IFR, behind firing line on floor		89	3.0
WRFW2	Locker room, former IFR, near firing line on floor		24	1.1
WRFW3	Locker room, former IFR, midrange on floor		37	<1.0
WRFW4	Locker room, former IFR, at bullet trap, SE corner on floor		73	1.6
WRFW5	Locker room, former IFR, at bullet trap, SW corner on floor		27	1.2
WRFW6	Vault, on table		23	2.6

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WRFW7	Kitchen, on counter		<10	<1.0
WRFW8	Drill floor, center on floor		<10	<1.0
WRFW9	Drill floor, west wall on floor (backstop for pellets)		30	1.6
WRFW10	Drill floor, south wall on floor (backstop for pellets)		<10	1.2
WRFW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: River Falls, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12210  
DFOH Lab Nos.: TM-14-74435 through TM-14-74445  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 10/21/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12210  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WRFW1	TM-14-74435	89	89
WRFW2	TM-14-74436	24	24
WRFW3	TM-14-74437	37	37
WRFW4	TM-14-74438	73	73
WRFW5	TM-14-74439	27	27
WRFW6	TM-14-74440	23	23
WRFW7	TM-14-74441	<10	<10
WRFW8	TM-14-74442	<10	<10
WRFW9	TM-14-74443	30	30
WRFW10	TM-14-74444	<10	<10
WRFW11**	TM-14-74445	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WRFW1	TM-14-74435	3.0	3.0
WRFW2	TM-14-74436	1.1	1.1
WRFW3	TM-14-74437	<1.0	<1.0
WRFW4	TM-14-74438	1.6	1.6
WRFW5	TM-14-74439	1.2	1.2
WRFW6	TM-14-74440	2.6	2.6
WRFW7	TM-14-74441	<1.0	<1.0
WRFW8	TM-14-74442	<1.0	<1.0
WRFW9	TM-14-74443	1.6	1.6
WRFW10	TM-14-74444	1.2	1.2
WRFW11**	TM-14-74445	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12210  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: October 6, 2014

River Falls Armory  
River Falls, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

<b>Environmental Laboratory</b> 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312)-886-0413 Fax: (312)-886-0434				<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement of Work No.: S 184441 Project No.: P 184442 Agency: WIARNG Proj. Manager: RIVER FALLS ARMY Location: RIVER FALLS (City, State): WI				<b>For Lab Use Only</b> Project / Report #: 122/0 Due Date: 10/22/14 Samples Received Chilled? YES <input checked="" type="checkbox"/> (circle one) Water Sample Codes: Turn Around Time Codes: Analysis Requested: STD: Standard 3D: Three Day Rush WH: Weekend/Holiday							
<b>Non-Responsive</b>				Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-None, D-NaOH				Lab ID #							
				Lab ID #											
ID #	Type <sup>1</sup>	Media <sup>2</sup>	Collected Date	Time	Sample Location / Description	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft <sup>2</sup> )	Volume (Liters)	Code <sup>3</sup>	Turn Around Time <sup>4</sup>	Lab ID #	Lead	Cadmium
WRFW1	7	5	10/6/14							I			74-15-74435		
2													74436		
3													74437		
4													74438		
5													74439		
6													74440		
7													74441		
8													74442		
9													74443		
10													74444		
✓ 11	✓	✓	✓	✓	Field blank					-			✓ 74445	✓	✓
<b>Sample Type Codes<sup>1</sup></b> 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				<b>Sample Media Codes<sup>2</sup></b> 1-Charcoal 2-Matched Weight, 0.8um 3-PVC Sizer 4-M CE 0.8 um, 3.7 um 5-Ghost Wipes™ 6-Passive badge 7-Other				<b>Retention Time<sup>5</sup></b> 1-1 day 2-3 days 3-7 days 4-14 days 5-30 days 6-60 days 7-90 days 8-180 days 9-360 days 10-Other				<b>Retention Time<sup>5</sup></b> 1-1 day 2-3 days 3-7 days 4-14 days 5-30 days 6-60 days 7-90 days 8-180 days 9-360 days 10-Other			
COMMENTS: samples are 1 square foot															

\* Applied to organic and inorganic analysis in cases of an emergency only. \*\* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 25, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Spooner Armory, Spooner, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 7, 2014 at the Wisconsin Army National Guard Spooner Armory, 625 E. Maple, Spooner, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Spooner Armory was built in 1956. The armory is the base of operations for Det 1, 950<sup>th</sup> Engineer Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Spooner Armory had an indoor firing range (IFR) that was closed in 1994 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: the Veterans Service office and awards ceremonies. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WSPW3, which was collected on the floor in the locker room, midrange in the former indoor firing range, had a lead concentration of 216 µg/ft<sup>2</sup>. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Spooner Armory. Ten of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached



## Appendix A

### Metals – Wipe Sampling



#### Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).


The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample WSPW3, which was collected on the floor in the locker room, midrange in the former indoor firing range, had a lead concentration of 216 µg/ft<sup>2</sup>.

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Spooner Armory  
Spooner, Wisconsin  
October 7, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft <sup>2</sup> )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WSPW1	Locker room, former IFR, behind firing line on floor		129	<1.0
WSPW2	Locker room, former IFR, at firing line on floor		37	<1.0



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WSPW3	Locker room, former IFR, midrange on floor		216	1.3
WSPW4	Locker room, former IFR, at bullet trap, SE corner on floor		50	1.2
WSPW5	Locker room, former IFR, at bullet trap, SW corner on floor		37	1.9
WSPW6	Vault, on floor		126	15
WSPW7	Drill floor, center on floor		<10	<1.0
WSPW8	Kitchen, on food prep table		<10	<1.0
WSPW9	Conference room, on conference table		<10	<1.0

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200	28
WSPW10	Open office area, on desktop		<10	<1.0
WSPW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

**Reference Data:** Lead and Cadmium  
Sampling Site: NGB: Spooner, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12214R  
DFOH Lab Nos.: TM-15-74479 through TM-15-74489  
Date Received: 10/14/14  
Data Analyzed: 10/17/14 – 10/20/14  
Date Issued: 11/06/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



**Project 12214R**  
**Page 1 of 2**

**FOH ENVIRONMENTAL LABORATORY**

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

**LEAD on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WSPW1	TM-15-74479	129	129
WSPW2	TM-15-74480	37	37
WSPW3	TM-15-74481	216	216
WSPW4	TM-15-74482	50	50
WSPW5	TM-15-74483	37	37
WSPW6	TM-15-74484	126	126
WSPW7	TM-15-74485	<10	<10
WSPW8	TM-15-74486	<10	<10
WSPW9	TM-15-74487	<10	<10
WSPW10	TM-15-74488	<10	<10
WSPW11**	TM-15-74489	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WSPW1	TM-15-74479	<1.0	<1.0
WSPW2	TM-15-74480	<1.0	<1.0
WSPW3	TM-15-74481	1.3	1.3
WSPW4	TM-15-74482	1.2	1.2
WSPW5	TM-15-74483	1.9	1.9
WSPW6	TM-15-74484	15	15
WSPW7	TM-15-74485	<1.0	<1.0
WSPW8	TM-15-74486	<1.0	<1.0
WSPW9	TM-15-74487	<1.0	<1.0
WSPW10	TM-15-74488	<1.0	<1.0
WSPW11**	TM-15-74489	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits  
(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12214R  
Page 2 of 2**

Industrial Hygiene Survey  
Survey date: October 7, 2014

Spooner Armory  
Spooner, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 895-6413 Fax: (312) 895-6434				Agreement No.: <b>A 106644</b> Statement: <b>S 104441</b> Project No.: <b>P 184442</b> Agency: <b>WIARNG-</b> Mgr. Manager: <b>Spooner Armory</b> Location: <b>Spooner, WI</b> City, State: <b>Spooner, WI</b>		For Lab Use Only Project / Report #: <b>12915</b> Due Date: <b>10/20/14</b> Samples Received Chilled? YES <input checked="" type="checkbox"/> (circle one) Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH STD- Standard 3D- Three Day Rush WH Weekend/Holiday									
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>				Lab ID # <b>TM-15-74479</b> <b>74480</b> <b>74481</b> <b>74482</b> <b>74483</b> <b>74484</b> <b>74485</b> <b>74486</b> <b>74487</b> <b>74488</b> <b>74489</b>				Lead Cadmium							
				Lab ID # <b>74480</b> <b>74481</b> <b>74482</b> <b>74483</b> <b>74484</b> <b>74485</b> <b>74486</b> <b>74487</b> <b>74488</b> <b>74489</b>				Lead Cadmium							
ID #	Type*	Result*	Collected Date	Time	Sample Location / Description	Flow (LPM)	Time (Min.)	Volume (Liters)	Area (ft <sup>2</sup> )	Volume (Liters)	Code <sup>3</sup>	Turn Around Time*	Lab ID #	Lead	Cadmium
WSPW1	7	5	10/7/14										TM-15-74479		
2	1												74480		
3	1												74481		
4	1												74482		
5	1												74483		
6	1												74484		
7	1												74485		
8	1												74486		
9	1												74487		
10	1												74488		
✓ 11	✓	✓	✓		Field blank								✓ 74489	✓	✓
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>															
COMMENTS: <b>samples are 1 square foot</b>															

\* Applied to organic and inorganic analysis in cases of an emergency only. <sup>®</sup> Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

November 30, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Stevens Point Armory, Stevens Point, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 10, 2014 at the Wisconsin Army National Guard Stevens Point Armory, 3116 Jefferson, Stevens Point, Wisconsin. The site points of contact were **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Stevens Point Armory is the base of operations for Battery B, 1<sup>st</sup> Battalion, 120<sup>th</sup> Field Artillery. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Stevens Point Armory had an indoor firing range (IFR) that was closed and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: Civil Air Patrol meetings; a polling place; Cub Scout meetings; a food pantry collection site; wrestling events; children's boot camp; and Red Cross blood drives. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Three of the surface wipe sample results exceeded the guideline for lead. Sample XSPW21, which was collected on the floor in the locker room, at the firing line in the former IFR, had a lead concentration of 494  $\mu\text{g}/\text{ft}^2$ . Sample XSPW31, which was collected on the floor in the locker room, midrange in the former IFR, had a lead concentration of 400



$\mu\text{g}/\text{ft}^2$ . Sample XSPW101, which was collected on the parts cleaner in the maintenance bay, had a lead concentration of  $251 \mu\text{g}/\text{ft}^2$ . The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Stevens Point Armory. Twelve of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

.

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Stevens Point Armory had an indoor firing range (IFR) that was closed and converted to a locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.





The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Three of the surface wipe sample results exceeded the guideline for lead. Sample XSPW21, which was collected on the floor in the locker room, at the firing line in the former indoor firing range, had a lead concentration of 494 µg/ft<sup>2</sup>. Sample XSPW31, which was collected on the floor in the locker room, midrange in the former indoor firing range, had a lead concentration of 400 µg/ft<sup>2</sup>. Sample XSPW101, which was collected on the parts cleaner in the maintenance bay, had a lead concentration of 251 µg/ft<sup>2</sup>.





#### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Stevens Point Armory  
Stevens Point, Wisconsin  
October 10, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
XWSPW11	Locker room, former IFR, behind firing line on floor		121	4.2
XWSPW21	Locker room, former IFR, at firing line on floor		494	3.4
XWSPW31	Locker room, former IFR, midrange on floor		400	7.1
XWSPW41	Locker room, former IFR, at bullet trap, SW corner on floor		66	3.2
XWSPW51	Locker room, former IFR, at bullet trap, NW corner on floor		127	4.0
XWSPW61	Drill floor, center on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
XWSPW71	Kitchen, on counter top		<10	<1.0
XWSPW81	Vault, on floor		114	5.3
XWSPW91	Room 8, Classroom and Conference room, on conference table		<10	<1.0
XWSPW101	Maintenance bay, on parts cleaner		<b>251</b>	14
XWSPW111	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Stevens Point, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12221  
DFOH Lab Nos.: TM-15-74556 through TM-15-74566  
Date Received: 10/14/14  
Data Analyzed: 10/22/14 – 10/23/14  
Date Issued: 10/23/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**

**Non-Responsive**



Project 12221  
Page 1 of 2

**FOH ENVIRONMENTAL LABORATORY**

538 S. 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 <sup>2</sup> )
XWSPW11	TM-15-74556	121	121
XWSPW21	TM-15-74557	494	494
XWSPW31	TM-15-74558	400	400
XWSPW41	TM-15-74559	66	66
XWSPW51	TM-15-74560	127	127
XWSPW61	TM-15-74561	<10	<10
XWSPW71	TM-15-74562	<10	<10
XWSPW81	TM-15-74563	114	114
XWSPW91	TM-15-74564	<10	<10
XWSPW101	TM-15-74565	251	251
XWSPW111**	TM-15-74566	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
XWSPW11	TM-15-74556	4.2	4.2
XWSPW21	TM-15-74557	3.4	3.4
XWSPW31	TM-15-74558	7.1	7.1
XWSPW41	TM-15-74559	3.2	3.2
XWSPW51	TM-15-74560	4.0	4.0
XWSPW61	TM-15-74561	<1.0	<1.0
XWSPW71	TM-15-74562	<1.0	<1.0
XWSPW81	TM-15-74563	5.3	5.3
XWSPW91	TM-15-74564	<1.0	<1.0
XWSPW101	TM-15-74565	14	14
XWSPW111**	TM-15-74566	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12221**  
**Page 2 of 2**



Industrial Hygiene Survey  
Survey date: October 10, 2014

Stevens Point Armory  
Stevens Point, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 895-5413 Fax: (312) 896-6434				Agreement No.: A 106644 Statement of Work No.: S 184441 Project No.: P 184442 Agency: WIARNG Proj. Manager: <i>Stevens Point Armory</i> Location (City, State): <i>Stevens Point, WI</i>		For Lab Use Only Project/Report #: 18222 Due Date: 10/20/14 Samples Received Chilled? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> (circle one) Conditions on Receipt with Name & Date Container Types: P-Plastic, G-Glass, V-VOC Preservatives: A-None, B-H <sub>2</sub> SO <sub>4</sub> , C-HNO <sub>3</sub> , D-NaOH STD- Standard 3D- Three Day Rush® WH Weekend/Holiday*							
<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>				ID # Type Media Collected Date Time Sample Location / Description				Air Flow (LPM) Time (Min) Volume (Liters) Wipe Area (ft²) Volume (Liters) Water Code Turn Around Time Lab ID #				Lead Cadmium	
				XWSPW11 7 5 10/10/14 21 31 41 51 61 71 81 91 101 111 Field blank				1 74-15-74556 74557 74558 74559 74560 74561 74562 74563 74564 74565 74566				✓ ✓	
1-Air 2-Water 3-Point 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Other				1-Charcoal 2-Matched Weight 0.5um 3-PVC Riser 4-MCE 0.8 um .37 mm 5-Ghost Wipes™ 6-Passive badge 7-Other				<div style="background-color: black; color: red; font-size: 2em; text-align: center; padding: 10px;">Non-Responsive</div>				COMMENTS: samples are 1 square foot	

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 26, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Superior Armory, Superior, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 7, 2014 at the Wisconsin Army National Guard Superior Armory, 32 North 21<sup>st</sup> St, Superior, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Superior Armory was built in 1957. The armory is the base of operations for the 950<sup>th</sup> Engineer Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Superior Armory had an indoor firing range (IFR) that was closed and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include a remote control car club for adults. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Three of the surface wipe sample results exceeded the guideline for lead. Sample WSUW2, which was collected on the floor in the locker room, at the firing line in the former indoor firing range, had a lead concentration of 434 µg/ft<sup>2</sup>. Sample WSUW4, which was collected on the floor in the locker room, at the southeast corner of the bullet trap in the former indoor firing range, had a lead concentration of 224 µg/ft<sup>2</sup>. Sample WSUW5, which was collected on the

floor in the locker room, at the southwest corner of the bullet trap in the former indoor firing range, had a lead concentration of 399  $\mu\text{g}/\text{ft}^2$ . The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Superior Armory. Nine of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Superior Armory had an indoor firing range (IFR) that was closed and converted to a locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).







The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant.

Three of the surface wipe sample results exceeded the guideline for lead. Sample WSUW2, which was collected on the floor in the locker room, at the firing line in the former indoor firing range, had a lead concentration of 434  $\mu\text{g}/\text{ft}^2$ . Sample WSUW4, which was collected on the floor in the locker room, at the southeast corner of the bullet trap in the former indoor firing range, had a lead concentration of 224  $\mu\text{g}/\text{ft}^2$ . Sample WSUW5, which was collected on the floor in the locker room, at the southwest corner of the bullet trap in the former indoor firing range, had a lead concentration of 399  $\mu\text{g}/\text{ft}^2$ .





#### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Superior Armory  
Superior, Wisconsin  
October 7, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WSUW1	Locker room, former IFR, behind firing line, at entrance on floor		83	1.5
WSUW2	Locker room, former IFR, at firing line, on floor		434	1.9
WSUW3	Locker room, former IFR, midrange on floor		98	<1.0
WSUW4	Locker room, former IFR, at bullet trap, SE corner on floor		224	4.1
WSUW5	Locker room, former IFR, at bullet trap, SW corner on floor		399	4.8
WSUW6	Drill floor, center on floor		<10	<1.0

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WSUW7	Supply room, on floor in front of vault		12	<1.0
WSUW8	Kitchen, on food prep table		<10	<1.0
WSUW9	Conference room, on conference table		<10	<1.0
WSUW10	Break room, on counter top		<10	<1.0
WSUW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.



## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Superior, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12223  
DFOH Lab Nos.: TM-15-74578 through TM-15-74588  
Date Received: 10/14/14  
Data Analyzed: 10/22/14 – 10/23/14  
Date Issued: 10/23/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**

**Non-Responsive**



Project 12223  
Page 1 of 2

**FOH ENVIRONMENTAL LABORATORY**

538 S. 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 <sup>2</sup> )
WSUW1	TM-15-74578	83	83
WSUW2	TM-15-74579	434	434
WSUW3	TM-15-74580	98	98
WSUW4	TM-15-74581	224	224
WSUW5	TM-15-74582	399	399
WSUW6	TM-15-74583	<10	<10
WSUW7	TM-15-74584	12	12
WSUW8	TM-15-74585	<10	<10
WSUW9	TM-15-74586	<10	<10
WSUW10	TM-15-74587	<10	<10
WSUW11**	TM-15-74588	<10	

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WSUW1	TM-15-74578	1.5	1.5
WSUW2	TM-15-74579	1.9	1.9
WSUW3	TM-15-74580	<1.0	<1.0
WSUW4	TM-15-74581	4.1	4.1
WSUW5	TM-15-74582	4.8	4.8
WSUW6	TM-15-74583	<1.0	<1.0
WSUW7	TM-15-74584	<1.0	<1.0
WSUW8	TM-15-74585	<1.0	<1.0
WSUW9	TM-15-74586	<1.0	<1.0
WSUW10	TM-15-74587	<1.0	<1.0
WSUW11**	TM-15-74588	<1.0	

**Surface Wipe Sampling Criteria**

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

**Non-Responsive****Project 12223**  
**Page 2 of 2**

Industrial Hygiene Survey  
Survey date: October 7, 2014

Superior Armory  
Superior, WI

## US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

510 S. Clark Street South, Suite 714 Chicago, IL 60605-1021 Tel: (312) 890-0410 Fax: (312) 890-0434				Agreement No.: <b>A 106644</b> Statement No.: <b>S 104441</b> Project No.: <b>P 184442</b> Agency: <b>WIARNG</b> Proj. Manager: <b>Superior Armory</b> Location (City, State): <b>Superior, WI</b>		For Lab Use Only Project/Report #: <b>12223</b> Due Date: <b>7/27/14</b> Samples Received Chilled? YES <input checked="" type="checkbox"/> (Circle one) Container Type: <b>P-Plastic, G-Glass, V-VOC</b> Preservatives: <b>A-HCl, B-H<sub>2</sub>SO<sub>4</sub>, C-HNO<sub>3</sub>, D-NaOH</b> STD: Standard 30- Three Day Rush* WH Weekend/Holiday*									
<div style="background-color: black; color: red; font-weight: bold; padding: 10px;">Non-Responsive</div>				Lab ID # <b>74578</b> <b>74579</b> <b>74580</b> <b>74581</b> <b>74582</b> <b>74583</b> <b>74584</b> <b>74585</b> <b>74586</b> <b>74587</b> <b>74588</b>				Lead Cadmium							
TS #	Type	Method	Collected Date	Time	Sample Location / Description	Flow (LPM)	Time (min.)	Volume (Liters)	Area (m <sup>2</sup> )	Volume (Liters)	Code	Turn Around Time*	Lab ID #	Lead	Cadmium
WSUW1	7	5	10/7/14					1					74578		
2	1	1											74579		
3	1	1											74580		
4	1	1											74581		
5	1	1											74582		
6	1	1											74583		
7	1	1											74584		
8	1	1											74585		
9	1	1											74586		
10	1	1											74587		
11	1	1			Field blank								74588	✓	✓
<div style="background-color: black; color: red; font-weight: bold; padding: 10px;">Non-Responsive</div>															
COMMENTS: <b>samples are 1 square foot</b>															

\* Applied to organic and inorganic analysis in cases of an emergency only. <sup>®</sup> Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

November 30, 2012

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Tomahawk Armory, Tomahawk, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 8, 2014 at the Wisconsin Army National Guard Tomahawk Armory, 215 Armory Rd, Tomahawk, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Tomahawk Armory is the base of operations for the 951<sup>st</sup> Engineer Company (Sapper). During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Tomahawk Armory had an indoor firing range (IFR) that was closed prior to 1992 and converted to a maintenance bay, office, and locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: National Guard recruitment ASBAB testing in the distance learning lab; and a popcorn distribution center for the Boy Scouts. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Two of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WTW1, which was collected on the floor in the maintenance bay, behind the firing line in the former indoor firing range, had a lead concentration of 897  $\mu\text{g}/\text{ft}^2$  and a cadmium concentration of 30  $\mu\text{g}/\text{ft}^2$ . Sample WTW5, which was collected on the floor in the locker room, in the southwest corner of the bullet trap area in the former indoor firing range, had a lead concentration of 367  $\mu\text{g}/\text{ft}^2$ . The following actions are required:

- Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
- When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

A lighting survey was conducted in the shops and offices in the Tomahawk Armory. Thirteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached



## Appendix A

### Metals – Wipe Sampling

#### Surface Area Wipe Samples

The Tomahawk Armory had an indoor firing range (IFR) that was closed prior to 1992 and converted to a maintenance bay, office, and locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).







The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Two of the surface wipe sample results exceeded the guidelines for toxic metals. Sample WTW1, which was collected on the floor in the maintenance bay, behind the firing line in the former indoor firing range, had a lead concentration of 897  $\mu\text{g}/\text{ft}^2$  and a cadmium concentration of 30  $\mu\text{g}/\text{ft}^2$ . Sample WTW5, which was collected on the floor in the locker room, in the southwest corner of the bullet trap area in the former indoor firing range, had a lead concentration of 367  $\mu\text{g}/\text{ft}^2$ .

#### **Recommendations:**





1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).



Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Tomahawk Armory  
Tomahawk, Wisconsin  
October 8, 2014

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WTW1	Maintenance bay, former IFR, behind firing line on floor		897	30
WTW2	Maintenance bay, former IFR, at firing line on floor		60	9.3
WTW3	Maintenance bay office, former IFR, midrange on floor		17	3.0
WTW4	Locker room, former IFR, at bullet trap, SE corner on floor		36	3.3
WTW5	Locker room, former IFR, at bullet trap, SW corner on floor		367	2.2
WTW6	Vault, on floor		<10	1.9

A-2

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>
WTW7	Drill floor, center on floor		<10	1.3
WTW8	Kitchen, on pizza oven		<10	<1.0
WTW9	Distance learning computer center, on desktop		<10	<1.0
WTW10	Fitness room, on ice machine		<10	<1.0
WTW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead and Cadmium  
Sampling Site: NGB: Tomahawk, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12216  
DFOH Lab Nos.: TM-15-74501 through TM-15-74511  
Date Received: 10/14/14  
Data Analyzed: 10/21/14 – 10/22/14  
Date Issued: 10/22/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**

**Non-Responsive**



Project 12216  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WTW1	TM-15-74501	897	897
WTW2	TM-15-74502	60	60
WTW3	TM-15-74503	17	17
WTW4	TM-15-74504	36	36
WTW5	TM-15-74505	367	367
WTW6	TM-15-74506	<10	<10
WTW7	TM-15-74507	<10	<10
WTW8	TM-15-74508	<10	<10
WTW9	TM-15-74509	<10	<10
WTW10	TM-15-74510	<10	<10
WTW11**	TM-15-74511	<10	

### CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WTW1	TM-15-74501	30	30
WTW2	TM-15-74502	9.3	9.3
WTW3	TM-15-74503	3.0	3.0
WTW4	TM-15-74504	3.3	3.3
WTW5	TM-15-74505	2.2	2.2
WTW6	TM-15-74506	1.9	1.9
WTW7	TM-15-74507	1.3	1.3
WTW8	TM-15-74508	<1.0	<1.0
WTW9	TM-15-74509	<1.0	<1.0
WTW10	TM-15-74510	<1.0	<1.0
WTW11**	TM-15-74511	<1.0	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	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

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/ft <sup>2</sup>

Non-Responsive



Project 12216  
Page 2 of 2

Industrial Hygiene Survey  
Survey date: October 8, 2014

Tomahawk Armory  
Tomahawk, WI

**US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

408 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 800-0413 Fax: (312) 888-0434				Agreement No: <b>A 106644</b> Statement: <b>S 104441</b> Project No: <b>P 184442</b> Agency: <b>WIARNG</b> Proj. Manager: <b>TOMAHAWK ARMY</b> Location: <b>TOMAHAWK, WI</b>		For Lab Use Only Project/Report #: <b>122/6</b> Due Date: <b>10/29/14</b> Samples Received On/Before: <b>YES</b> (Date and time) Container Type: <b>P-Plastic, G-Glass, V-VOC</b> Preservatives: <b>A-None, B-H<sub>2</sub>SO<sub>4</sub>, C-HNO<sub>3</sub>, D-NaOH</b> STD: <b>Standard</b> SD: <b>Three Day Rush</b> WH: <b>Weekend/Holiday</b>								
<div style="background-color: black; color: red; font-weight: bold; padding: 10px; text-align: center;">Non-Responsive</div>				Turn Around Time: <b>1</b>				Lab ID # <b>TM-15-74501</b>		Lead Cadmium				
				Turn Around Time: <b>1</b>				Lab ID # <b>74502</b> <b>74503</b> <b>74504</b> <b>74505</b> <b>74506</b> <b>74507</b> <b>74508</b> <b>74509</b> <b>74510</b> <b>74511</b>						
ID #	Type	Matrix	Substrate	Sample Location / Description	Flow (LPM)	Time (Min)	Volume (Liters)	Area (m <sup>2</sup> )	Volume (Liters)	Code	Turn Around Time	Lab ID #	Lead	Cadmium
WTW1	7	5	10/8/14									TM-15-74501		
2												74502		
3												74503		
4												74504		
5												74505		
6												74506		
7												74507		
8												74508		
9												74509		
10												74510		
✓ 11	✓	✓	✓	Field blank								✓ 74511	✓	✓

Non-Responsive

1-Air 2-Water 3-Paint 4-Soil 5-Dust  
6-Bulk 7-Wipe 8-Other  
1-Charcoal 2-Matched Weight, 0.8um  
3-PVC filter 4-M CE 0.8 um, 37 mm  
5-Ghost Wipes™ 6-Passive badge  
7-Other

COMMENTS: **samples are 1 square foot**

\* Applied to organic and inorganic analysis in cases of an emergency only. \* Applied to inorganic and organic samples, SD: Applied to organic and inorganic samples 7-10 business days.



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

ARNG-CSG-P

November 10, 2013

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Wausau Armory, Wausau, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 17, 2013 at the Wisconsin Army National Guard Wausau Armory, 833 S. 17<sup>th</sup> Avenue. The site point of contact was Cpt. **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel IAW DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in vault 1 had a lead concentration of 425 µg/ft<sup>2</sup>. The following actions are required:

- **Clean the horizontal surfaces of the vault using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (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 3).**

A lighting survey was conducted in the shops and offices in Wausau Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office areas, shops and the maintenance bay.



Industrial Hygiene Survey  
Survey Date: October 17, 2013

Wausau Armory  
Wausau, WI

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached

## Appendix A Metals

### Surface Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates IAW the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals to food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

Although OSHA does not have published exposure standards for metal surface contamination, the 29 CFR 1910 requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts. In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines shown in Table A-1 are considered significant. Sample WAAW1, which was collected on the floor in vault 1 had a lead concentration of 425 µg/ft<sup>2</sup>

### Recommendations:

1. Clean the horizontal surfaces of the vault using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).
2. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (RAC 2)
3. 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).

Table A-1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard, Wausau Armory, Wausau, WI  
October 17, 2013

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200
WAAW1	Vault 1, on Floor		425
WAAW2	Kitchen, on Table		<91
WAAW3	Drill Floor, Center, on Floor		<91
WAAW4	Locker Room, Former IFR, at Firing Line		<91
WAAW5	Locker Room, Former IFR, at Bullet Trap		<91
WAAW6	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g} / \text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

Laboratory Result Reports and Chain of Custody Sheets



FOH ENVIRONMENTAL LABORATORY

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

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Wausau, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11415  
DFOH Lab Nos.: TM-14-64476 through TM-14-64481  
Date Received: 10/22/13  
Date Analyzed: 10/24/13  
Date Issued: 10/24/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11415  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WAAW1	TM-14-64476	47	425
WAAW2	TM-14-64477	<10	<91
WAAW3	TM-14-64478	<10	<91
WAAW4	TM-14-64479	<10	<91
WAAW5	TM-14-64480	<10	<91
WAAW6**	TM-14-64481	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sits

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 11415  
Page 2 of 2



**US PUBLIC HEALTH SERVICE FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY FIELD DATA SHEET**

Site of Work: **Wausau Armory, 1000 N. Lincoln Ave., Wausau, WI 54980**  
 Date of Survey: **10/17/2013**  
 Time of Survey: **08:00 AM**  
 Surveyor: **John J. Smith**  
 Title: **Industrial Hygienist**

**Non-Responsive**

ID#	Name	Address	City	State	Zip	Phone	Fax	E-mail	Occupation	Employer	Start Date	End Date	Reason for Leaving	Current Status	Comments
1	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
2	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
3	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
4	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
5	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
6	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
7	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
8	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
9	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				
10	John J. Smith	1000 N. Lincoln Ave.	Wausau	WI	54980	(715) 833-1234			Industrial Hygienist	US Public Health Service	10/17/2013				

Comments: **Non-Responsive**

Signature: **John J. Smith**  
 Title: **Industrial Hygienist**  
 Date: **10/17/2013**



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

ARNG-CSG-P

July 6, 2015

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Wausau Armory, Wausau, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on May 20, 2015 at the Wisconsin Army National Guard Wausau Armory, 833 South 17<sup>th</sup> Ave, Wausau, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Wausau Armory was built in 1959. The armory is the base of operations for HHC 173<sup>rd</sup> BSTB. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance is performed in the armory. No vehicle maintenance was performed on the day of the survey. The Wausau Armory had an indoor firing range (IFR) that was closed in 1989 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include blood drives, Boy Scout meetings, and as a school supply issuance point. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Site personnel reported that an asbestos survey and a lead paint survey had been performed for the building. Records for the asbestos and lead paint surveys were not available for review on the day of the site visit. The following actions are required:

- **Based on the age of the building, an asbestos survey should be performed. Asbestos containing materials (ACM) should be identified and shop personnel should be informed of their location as required by 29 CFR 1910.1000(j)(2). The survey results should be maintained on site (RAC 2).**

- **Based on the age of the building, a lead paint survey should be performed. The survey results should be maintained on site (RAC 2).**

Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead, cadmium, and chromium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the thirty surface wipe sample results exceeded the guidelines for toxic metals. The following actions are required:

- **Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title
A.	Laboratory Result Reports and Chain of Custody Sheets



### Wausau Armory

#### Toxic Metals – Wipe Sampling







##### **Surface Area Wipe Samples**





The Wausau Armory had an indoor firing range (IFR) that was closed in 1989 and converted to a locker room. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals (lead, cadmium, and chromium) into food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table 1.

The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table 1, are considered significant. None of the thirty surface wipe sample results exceeded the guidelines for toxic metals.

Table 1  
Surface Area Wipe Sampling Results for Toxic Metals  
Wisconsin Army National Guard  
Wausau Armory  
Wausau, Wisconsin  
May 20, 2015

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )	Chromium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>	<b>6,970</b>
WAAW11	Locker room, former IFR, at firing line on floor		167	13	11
WAAW12	Locker room, former IFR, 15' downrange on floor		89	2.8	<10
WAAW13	Locker room, former IFR, 45' downrange on floor		54	3.3	<10
WAAW14	Locker room, former IFR, SW corner at bullet trap on floor		60	4.8	<10
WAAW15	Locker room, former IFR, SE corner at bullet trap on floor		76	4.4	<10
WAAW16	Drill floor, center on floor		<10	2.6	<10

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )	Cadmium ( $\mu\text{g}/\text{ft}^2$ )	Chromium ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>	<b>28</b>	<b>6,970</b>
WAAW17	Outside of entrance to vault, on floor		78	4.5	11
WAAW18	Maintenance bay, on top of cabinet		18	3.0	11
WAAW19	Kitchen, on pizza oven		<10	<1.0	<10
WAAW20	Classroom, on table top		<10	<1.0	<10
WAAW21	Field blank	N/A	<10	<1.0	<10

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where toxic metals may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USFPO for Maryland  
320274 SMR 301 Old Bay Lane  
Havre de Grace, MD 21078

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead, Cadmium and Chromium  
Sampling Site: NGB: Wausau, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 12853  
DFOH Lab Nos.: TM-15-80431 through TM-15-80441  
Date Received: 05/22/15  
Data Analyzed: 05/26/15 – 05/27/15  
Date Issued: 05/28/15

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 12853  
Page 1 of 3



**FOH ENVIRONMENTAL LABORATORY**

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

**LEAD on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (ug)	CONCENTRATION (ug/m <sup>2</sup> )
WAAW11	TM-15-80431	167	167
WAAW12	TM-15-80432	89	89
WAAW13	TM-15-80433	54	54
WAAW14	TM-15-80434	60	60
WAAW15	TM-15-80435	76	76
WAAW16	TM-15-80436	<10	<10
WAAW17	TM-15-80437	78	78
WAAW18	TM-15-80438	18	18
WAAW19	TM-15-80439	<10	<10
WAAW20	TM-15-80440	<10	<10
WAAW21	TM-15-80441	<10	<10

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (ug)	CONCENTRATION (ug/m <sup>2</sup> )
WAAW11	TM-15-80431	13	13
WAAW12	TM-15-80432	2.8	2.8
WAAW13	TM-15-80433	3.3	3.3
WAAW14	TM-15-80434	4.8	4.8
WAAW15	TM-15-80435	4.4	4.4
WAAW16	TM-15-80436	2.6	2.6
WAAW17	TM-15-80437	4.5	4.5
WAAW18	TM-15-80438	3.0	3.0
WAAW19	TM-15-80439	<1.0	<1.0
WAAW20	TM-15-80440	<1.0	<1.0
WAAW21	TM-15-80441	<1.0	<1.0

**CHROMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (ug)	CONCENTRATION (ug/m <sup>2</sup> )
WAAW11	TM-15-80431	11	11
WAAW12	TM-15-80432	<10	<10
WAAW13	TM-15-80433	<10	<10
WAAW14	TM-15-80434	<10	<10
WAAW15	TM-15-80435	<10	<10
WAAW16	TM-15-80436	<10	<10
WAAW17	TM-15-80437	11	11
WAAW18	TM-15-80438	11	11
WAAW19	TM-15-80439	<10	<10
WAAW20	TM-15-80440	<10	<10
WAAW21	TM-15-80441	<10	<10

Project 12853  
Page 2 of 3



## FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level $\mu\text{g}/\text{ft}^2$	Basis 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	200 for facilities (all surfaces)	NG Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006, <a href="http://www.ngbcdc.ngb.army.mil/cubs420/ngpam420_15.pdf">http://www.ngbcdc.ngb.army.mil/cubs420/ngpam420_15.pdf</a>
Lead	40 for any potentially child occupied areas of facility (all surfaces); used for armories with public access, family services offices, or other routine use by children	NG Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006, <a href="http://www.ngbcdc.ngb.army.mil/cubs420/ngpam420_15.pdf">http://www.ngbcdc.ngb.army.mil/cubs420/ngpam420_15.pdf</a>

### Metals in Wipe Limits (based on one $\text{ft}^2$ sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$
Cadmium	OSHA ID-121	0.5 $\mu\text{g}/\text{ft}^2$	1.0 $\mu\text{g}/\text{ft}^2$
Chromium	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$

Non-Responsive

M  
T



Project 12853  
Page 3 of 3

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

<b>Environmental Laboratory</b> 536 S. Clark Street South, Suite 714 Chicago, IL 60605-1521 Tel: (312) 896-0413 Fax: (312) 896-0434		<b>PROJECT REFERENCE</b> Agreement No.: A 106644 Statement S 188318 Project No: P 188319 Agency WIAWNG Manager Wausau Armory Location Wausau, WI State: WI		<b>For Lab. Use Only</b> Project/Report # 12853 Due Date: 5/24/15 Samples Received Chilled? <input checked="" type="checkbox"/> (discuss) See notes Water Sample Codes* Turn Around Time Codes* Analysis Requested Container Types: STD- Standard P-Plastic, G-Glass, W-WCC SD- 1 liter Jay Hash* Preservatives: WH Weekend Holiday* A-Haz, B-H/SC, G-HNC, D-NeC I	
<b>Non-Responsive</b>		<b>Non-Responsive</b>		<b>Non-Responsive</b>	
Lab #	Job #	Date	Time	Location / Description	Lab ID #
WAWW11	75	5/20/15		1 square ft	TM-16-80431
12					80432
13					80433
14					80434
15					80435
16					80436
17					80437
18					80438
19					80439
20					80440
21					80441
<b>Sample Type Codes*</b> 1-Hz 2-Water 3-Poly 4-SD 5-Other 6-Disk 7-WWCC 8-Other		<b>Sample Media Codes*</b> 1-Disc 2-Volter Weir 3-Item 4-AM 5-2.5 um 6-7 mm 8-Silver Wipes 9-Passive bags 7-Other		<b>Non-Responsive</b>	
COMMENTS:					

\* Applied to organic and inorganic analysis in cases of an emergency only. \*\* Applied to inorganic and organic samples. SD: Applied to organic and inorganic samples 7-10 business days.

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

ARNG-CSG-P

April 19, 2014

**MEMORANDUM FOR:** The Adjutant General for Wisconsin**SUBJECT:** Industrial Hygiene Survey at Whitewater Armory, Whitewater, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on March 21, 2014 at the Wisconsin Army National Guard Whitewater Armory, 952 Universal Blvd., Whitewater, Wisconsin. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel in accordance with DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Whitewater Armory was built in 1992 and it has about 24,036 square feet of floor space. The armory is the base of operations for Alpha Company 257<sup>th</sup>. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends, and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Whitewater Armory had an indoor firing range (IFR) that has been closed and converted to a women's locker room and latrine. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include VFW meetings. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. None of the surface wipe sample results exceeded the guideline for lead. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

A lighting survey was conducted in the shops and offices in the Whitewater Armory. Twenty-four of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

- **Increase the illumination levels in the facility areas that did not meet minimum illumination requirements (RAC 4).**

For any further questions, please contact **Non-Responsive**

**Non-Responsive**

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached



**Appendix A**  
**Lead – Wipe Sampling****Surface Area Wipe Samples**

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of lead into food handling spaces. The samples were analyzed for lead by OSHA Method ID-121. The results and photos are contained in Table A-1.




The Occupational Safety and Health Administration (OSHA) requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts (29 CFR 1910). In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. None of the surface wipe sample results exceeded the guideline for lead.

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Whitewater Armory  
Whitewater, Wisconsin  
March 21, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
<b>Surface Guideline</b>			<b>200</b>
WWHAW21	Women's locker room, former IFR, at bullet trap, on floor		<91
WWHAW22	Women's latrine, former IFR, at firing line, on floor		<91



Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
Surface Guideline			200
WWHAW23	Vault, on floor		<91
WWHAW24	Supply area, near entrance to former IFR		<91
WWHAW25	Kitchen, on counter		<91
WWHAW26	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g}/\text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

### **Recommendations:**

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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 3).
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

#### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Whitewater, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11662  
DFOH Lab Nos.: TM-14-86740 through TM-14-86745  
Date Received: 03/24/14  
Data Analyzed: 03/25/14 – 03/26/14  
Date Issued: 03/27/14

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11662  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WWHAW21	TM-14-66740	<10	<91
WWHAW22	TM-14-66741	<10	<91
WWHAW23	TM-14-66742	<10	<91
WWHAW24	TM-14-66743	<10	<91
WWHAW25	TM-14-66744	<10	<91
WWHAW26**	TM-14-66745	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Back for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 11662  
Page 2 of 2

**U.S. PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET**

<b>PROJECT INFORMATION</b> Agency: <b>1066444</b> Project No: <b>189749</b> Agency: <b>2014206</b> Location: <b>Whitewater Armory</b> (City, State): <b>Whitewater, WI</b>		<b>FOR USE ONLY</b> Survey Report #: <b>11162</b> Date: <b>3/23/14</b> Sample, Analysis, Control: <b>75</b> Water Agency Code: <b>000000</b> State Agency Code: <b>000000</b> Contaminant Type: <b>Physical &amp; Chemical, VOCs</b> Preconcentrations: <b>None</b> Address: <b>101100</b> Contact: <b>000000</b>		<b>CONDITIONS ON FIELD USE ONLY</b> STD: <b>Standard</b> SD: <b>Standard</b> WSP: <b>Standard</b>								
ID #	Type	Media	Container	Sample Location / Description	Flow	Time	Volume	Mass	Volume	Code	Turn	Lab ID #
1066444	7	5	5/20/14									60770
1	25											60771
2	25											60772
3	25											60773
4	25											60774
5	25											60775
<b>Non-Responsive</b>												

**Non-Responsive**



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

ARNG-CSG-P

November 10, 2013

**MEMORANDUM FOR:** The Adjutant General for Wisconsin

**SUBJECT:** Industrial Hygiene Survey at Wisconsin Rapids Armory, Wisconsin Rapids, Wisconsin

At the request of the National Guard Bureau (NGB) Mid-West Regional Industrial Hygiene (IH) Office, **Non-Responsive**, Certified Industrial Hygienist (CIH), conducted a survey on October 18, 2013 at the Wisconsin Army National Guard Wisconsin Rapids Armory, 1710 Second Avenue South. The site point of contact was **Non-Responsive**.

The NGB 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 by site personnel, field measurements, and conditions observed during the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Occupational health risk assessment codes (RACs) are assigned to quantify health risks to personnel IAW DOD Letter of Instruction 6055.1, *DOD Safety and Occupational Health Program*. 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. RAC descriptors are as follows: 1 = Critical, 2 = Serious, 3 = Moderate, 4 = Minor, and 5 = Negligible.

The Wisconsin Rapids Armory had an indoor firing range (IFR) that had been closed and converted to a locker and storage area. Wipe samples were collected on representative surfaces in the facility and analyzed for lead. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in the locker area (at the firing line area of the former IFR) had a lead concentration of 305  $\mu\text{g}/\text{ft}^2$ . The following actions are required:

- **Clean the horizontal surfaces of the locker area using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (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 3).**

Industrial Hygiene Survey  
Survey Date: October 18, 2013

Wisconsin Rapids Armory  
Wisconsin Rapids, WI

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A lighting survey was conducted in the shops and offices in the Wisconsin Rapids Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and shop areas.

For any further questions, please contact **Non-Responsive**

.

**Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
B.	Lighting	Attached



## Appendix A Metals

### Surface Wipe Samples

The Wisconsin Rapids Armory had an indoor firing range (IFR) that had been closed and converted to a locker and storage area. Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates IAW the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration of toxic metals to food handling spaces. The samples were analyzed for toxic metals by OSHA Method ID-121. The results and photos are contained in Table A-1.

Although OSHA does not have published exposure standards for metal surface contamination, the 29 CFR 1910 requires that all surfaces must be kept as free as practicable of accumulations of toxic metal dusts. In addition, DOD has instituted a new policy to minimize surface contamination levels of heavy metals (*Control and Management of Surface Accumulations from Lead, Hexavalent Chromium, and Cadmium Operations*, DTM 12-003, 18 April 2012).

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines shown in Table A-1 are considered significant. One sample exceeded these guidelines. Sample WRAW2, which was collected on the floor in the individual locker area (at the firing line of the former IFR) had a lead concentration of 305 µg/ft<sup>2</sup>.

### **Recommendations:**

1. Clean the horizontal surfaces of the locker area using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).
2. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (RAC 2)
3. 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).

Table A-1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard, Wisconsin Rapids Armory, Wisconsin Rapids, WI  
October 18, 2013

Sample #	Location	Photo	Lead ( $\mu\text{g}/\text{ft}^2$ )
<b>Surface Guideline</b>			<b>200</b>
WRAW1	Kitchen, on Counter		<91
WRAW2	Individual Locker Area, Former IFR Firing Line Area, on Floor		305
WRAW3	Individual Locker Area, Former IFR Bullet Trap Area, on Floor		<91
WRAW4	Drill Floor, Center		<91
WRAW5	Vault, on Floor		<91
WRAW6	Field Blank	N/A	ND

Notes: 1)  $\mu\text{g} / \text{ft}^2$  = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

## Laboratory Result Reports and Chain of Custody Sheets



### FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Wisconsin Rapids, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 11413  
DFOH Lab Nos.: TM-14-64464 through TM-14-64469  
Date Received: 10/22/13  
Data Analyzed: 10/24/13  
Date Issued: 10/24/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 11413  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. 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 <sup>2</sup> )
WRAW1	TM-14-64464	<10	<91
WRAW2	TM-14-64465	34	305
WRAW3	TM-14-64466	<10	<91
WRAW4	TM-14-64467	<10	<91
WRAW5	TM-14-64468	<10	<91
WRAW6**	TM-14-64469	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**




Project 11413  
Page 2 of 2



FOIA Requested Record #J-15-0085 (WI)  
Released by National Guard Bureau  
Page 227 of 390

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Berlin Armory  
147 Memorial Drive  
Berlin, Wisconsin

Survey date: March 18, 2013

Performed by

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

May 9, 2013



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

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

## **I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Berlin Armory, located in Berlin, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Berlin Armory was built in 1957 and it has about 16,332 square feet of floor space. At the time of the survey, no Wisconsin Army National Guard units were assigned to the armory. The Berlin Armory had an indoor firing range that was closed and converted to a weight room and locker room. Site personnel reported that the firing range was closed in the 1980's. Weapons have been cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: the women, infants and children program which uses a classroom in the armory twice a month; boy scout and girl scout meetings; weekly Zumba classes; as a polling place; and for SWAT training for the county sheriff.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk. The services are provided by visiting nurses and other health care professionals.

Nine samples were collected on representative surfaces throughout the facility and analyzed for three heavy metals (lead, cadmium and chromium). One of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected on a desktop in the classroom had a lead concentration of 261 ug/ft<sup>2</sup>. Site personnel reported that this classroom is used for consultations provided by the WIC.

The NGB-ARS Memorandum for the Chiefs of Staff dated February 2, 2006 provides guidance for potential lead hazard exposure in Army National Guard child occupied facilities. The memorandum defines a child occupied facility as a building, or a portion of a building, visited on a regular basis by the same child, six years of age or under. Child occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms. The memorandum states that, "For all areas used/occupied on a regular basis by children ages six and under clean all floors accessible to said children to the EPA dust-lead standard of 40 ug/ft<sup>2</sup>. Clean all other surfaces in accordance with USACHPPM recommendations for lead in dust of 200 ug/ft<sup>2</sup> on frequently contacted surfaces." The classroom and any others areas in the armory that are occupied by children should be cleaned up to the EPA dust-lead standard of 40 ug/ft<sup>2</sup>. After cleanup, the areas should be resampled to ensure that they meet the above criteria.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Berlin Armory, located in Berlin, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 18, 2013.

The NGB 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 Berlin Armory was built in 1957 and it has about 16,332 square feet of floor space. At the time of the survey, no Wisconsin Army National Guard units were assigned to the armory. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities were mostly limited to fluid checks and tire changes on drill weekends, and that no major vehicle maintenance was performed at the armory. No vehicle maintenance was performed on the day of the survey. The Berlin Armory had an indoor firing range that was closed and converted to a weight room and locker room. Site personnel reported that the firing range was closed in the 1980's. Weapons have been cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: the women, infants and children program which uses a classroom in the armory twice a month; boy scout and girl scout meetings; weekly Zumba classes; as a polling place; and for SWAT training for the county sheriff.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk. The services are provided by visiting nurses and other health care professionals.

#### **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Berlin Armory**

#### **V. Findings, Discussion, and Recommendations**

At the time of the survey, no Wisconsin Army National Guard units were assigned to the armory. The Berlin Armory had an indoor firing range that was closed and converted to a weight room and locker room. Site personnel reported that the firing range was closed in the 1980's. Weapons have been cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include: the women, infants and children program which uses a classroom in the armory twice a month; boy scout and girl scout meetings; weekly Zumba classes; as a polling place; and for SWAT training for the county sheriff.

### **Surface Wipe Samples**

Nine samples were collected on representative surfaces throughout the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for heavy metals is contained in Table 2.

One of the surface wipe sample results exceeded the NGB criteria. Sample WIBEW4, which was collected on a desktop in the classroom had a lead concentration of 261 ug/ft<sup>2</sup>. Site personnel reported that this classroom is used for consultations provided by the WIC.

The NGB-ARS Memorandum for the Chiefs of Staff dated February 2, 2006 provides guidance for potential lead hazard exposure in Army National Guard child occupied facilities. The memorandum defines a child occupied facility as a building, or a portion of a building, visited on a regular basis by the same child, six years of age or under. Child occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms. The memorandum states that, "For all areas used/occupied on a regular basis by children ages six and under clean all floors accessible to said children to the EPA dust-lead standard of 40 ug/ft<sup>2</sup>. Clean all other surfaces in accordance with USACHPPM recommendations for lead in dust of 200 ug/ft<sup>2</sup> on frequently contacted surfaces." The classroom and any others areas in the armory that are occupied by children should be cleaned up to the EPA dust-lead standard of 40 ug/ft<sup>2</sup>. After cleanup, the areas should be resampled to ensure that they meet the above criteria.

The Berlin Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Metals  
Wisconsin Army National Guard  
Berlin Armory  
Berlin, Wisconsin

Sample Number and Location	Lead (ug/ft <sup>2</sup> )	Cadmium (ug/ft <sup>2</sup> )	Chromium (ug/ft <sup>2</sup> )
Sample WIBEW1, Drill Floor, Center	<91	<9.1	<91
Sample WIBEW 2, Classroom, Behind Door, on Floor	<91	<9.1	<91
Sample WIBEW 3, Classroom, Center, on Floor	<91	15	<91
Sample WIBEW 4, Classroom, on Desktop	<b>261</b>	<9.1	<91
Sample WIBEW 5, Classroom, Corner, on Floor, Northeast corner	<91	<9.1	<91
Sample WIBEW 6, Kitchen, on Counter Top	<91	<9.1	<91
Sample WIBEW 7, Rifle Range, Former IFR, at Firing Line	<91	10	<91
Sample WIBEW 8, Rifle Range, Former IFR, at Bullet Stop	140	<9.1	<91
Sample WIBEW 9, Rifle Range, Former IFR, on Locker	<91	<9.1	<91
Sample WIBEW 10, Field Blank	ND	ND	<91

Notes: 1) ug/ft<sup>2</sup>= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant." 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Metals

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium III	6,970	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Lead	200	NG Pam 420-15

### **Recommendations:**

1. The classroom and any others areas in the armory that are occupied by children should be cleaned up to the EPA dust-lead standard of 40 ug/ft<sup>2</sup>. After cleanup, the areas should be resampled to ensure that they meet the above criteria. (**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 4)**
3. Continue to clean the horizontal surfaces in work and storage areas. **(RAC 4)**
4. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 2)**

**Figure 2 – Wipe Sample Locations (below)**



Sample WIBEW1



Sample WIBEW2



Sample WIBEW3



Sample WIBEW4



Sample WIBEW5



Sample WIBEW6



Sample WIBEW7



Sample WIBEW8



Sample WIBEW9

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Berlin Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
WIARNG Berlin Armory  
Berlin, Wisconsin  
March 18, 2013

Location	Illumination (foot candles)
Library	35-55
Classroom	10-18
Kitchen	40-55
Unit Storage	20-45
Office 3	75-85
Office 4	50-62
Office 6	30-45
Office 6A	12-18
Office 6B	11-13
Office 6C	10-14
Locker Room	35-50
Men's Bathroom	27-35
Women's Bathroom	20-45
Rifle Range, Former IFR	8-24

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

## Sources:

ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. **(RAC 4)**

This survey was conducted by, and report written by **Non-Responsive**, CIH, CPE as a representative of the NGB. This survey report was reviewed by **Non-Responsive**, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A

### **Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

### **Berlin Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B



**Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

**Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

**Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead, Cadmium and Chromium  
Sampling Site: NGB: Berlin, WI (Armory)  
Sample Media: Ghost Wipe(s)<sup>®</sup>  
Method Reference: OSHA ID-121  
Project ID: Project 10987  
DFOH Lab Nos.: TM-13-60136 through TM-13-60145  
Date Received: 03/21/13  
Data Analyzed: 03/22/13 – 03/25/13  
Date Issued: 03/27/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 10987  
Page 1 of 3

**FOH ENVIRONMENTAL LABORATORY**

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

**LEAD on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION (μg/ft <sup>2</sup> )
WIBEW1	TM-13-60136	<10	<91
WIBEW2	TM-13-60137	<10	<91
WIBEW3	TM-13-60138	<10	<91
WIBEW4	TM-13-60139	29	261
WIBEW5	TM-13-60140	<10	<91
WIBEW6	TM-13-60141	<10	<91
WIBEW7	TM-13-60142	<10	<91
WIBEW8	TM-13-60143	15	140
WIBEW9	TM-13-60144	<10	<91
WIBEW10	TM-13-60145	<10	None Detected

**CADMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION (μg/ft <sup>2</sup> )
WIBEW1	TM-13-60136	<1.0	<9.1
WIBEW2	TM-13-60137	<1.0	<9.1
WIBEW3	TM-13-60138	1.6	15
WIBEW4	TM-13-60139	<1.0	<9.1
WIBEW5	TM-13-60140	<1.0	<9.1
WIBEW6	TM-13-60141	<1.0	<9.1
WIBEW7	TM-13-60142	1.1	10
WIBEW8	TM-13-60143	<1.0	<9.1
WIBEW9	TM-13-60144	<1.0	<9.1
WIBEW10	TM-13-60145	<1.0	None Detected

**CHROMIUM on WIPE RESULTS**

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (μg)	CONCENTRATION (μg/ft <sup>2</sup> )
WIBEW1	TM-13-60136	<10	<91
WIBEW2	TM-13-60137	<10	<91
WIBEW3	TM-13-60138	<10	<91
WIBEW4	TM-13-60139	<10	<91
WIBEW5	TM-13-60140	<10	<91
WIBEW6	TM-13-60141	<10	<91
WIBEW7	TM-13-60142	<10	<91
WIBEW8	TM-13-60143	<10	<91
WIBEW9	TM-13-60144	<10	<91
WIBEW10	TM-13-60145	<10	None Detected

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## FOH ENVIRONMENTAL LABORATORY

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

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level $\mu\text{g}/\text{ft}^2$	Basis 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 Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$
Cadmium	OSHA ID-121	0.5 $\mu\text{g}/\text{ft}^2$	1.0 $\mu\text{g}/\text{ft}^2$
Chromium	OSHA ID-121	5.0 $\mu\text{g}/\text{ft}^2$	10 $\mu\text{g}/\text{ft}^2$

Non-Responsive



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\* Approved to retransmit and to originate messages in 20061 on 27 February 2007 only. <sup>2</sup> Approved to retransmit and originate messages, SIO. Approved to retransmit and originate messages, 7-10 28-10-2008 10:00.



## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Hartford Armory  
880 West State Street  
Hartford, Wisconsin

Survey date: March 21, 2013

Performed by

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

May 8, 2013

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- I. Executive Summary
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## Appendices

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

## **I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Hartford Armory, located in Hartford, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Hartford Armory was built in 1957 and it has about 19,012 square feet of floor space. The armory is the base of operations for the 457<sup>th</sup> CBRN. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are limited to preventive maintenance checks and services (PMCS). No vehicle maintenance was performed on the day of the survey. The Hartford Armory had an indoor firing range that was closed and converted to a storage area. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is available for community activities that include: high school students who use the drill floor to build floats; and a Christmas party for family members of the unit.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. One of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected at the firing line in the former IFR had a lead concentration of 1,109 ug/ft<sup>2</sup>. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>.

The Hartford Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Hartford Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices, maintenance bay, and storage areas.



## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Hartford Armory, located in Hartford, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 21, 2013.

The NGB 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 Hartford Armory was built in 1957 and it has about 19,012 square feet of floor space. The armory is the base of operations for the 457<sup>th</sup> CBRN. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are limited to preventive maintenance checks and services (PMCS). No vehicle maintenance was performed on the day of the survey. The Hartford Armory had an indoor firing range that was closed and converted to a storage area. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for community activities that include: high school students who use the drill floor to build floats; and a Christmas party for family members of the unit.

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Hartford Armory**

## **V. Findings, Discussion, and Recommendations**

The Hartford Armory is the base of operations for the 457<sup>th</sup> CBRN. Site personnel reported that vehicle maintenance activities are limited to PMCS. No vehicle maintenance was performed on the day of the survey. The Hartford Armory had an indoor firing range that was closed and converted to a storage area. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for community activities that include: high school students who use the drill floor to build floats; and a Christmas party for family members of the unit.

### **Surface Wipe Samples**

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

One of the surface wipe sample results exceeded the NGB criteria. Sample WIHAW4, which was collected at the firing line in the former IFR had a lead concentration of 1,109 ug/ft<sup>2</sup>. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG

PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>.

The Hartford Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Hartford Armory  
Hartford, Wisconsin  
March 21, 2013

Location	Sample #	Lead Concentration (ug/ft <sup>2</sup> )
Drill Floor, Center	WIHAW1	<91
Kitchen, on Countertop	WIHAW2	<91
Vault, on Floor	WIHAW3	172
Former IFR, at Firing Line	WIHAW4	<b>1,109</b>
Former IFR, at Bullet Trap	WIHAW5	105
Field Blank	WIHAW6	ND

Note:

- 1) ug/ft<sup>2</sup>= micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was "significant."
- 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Lead	200	NG Pam 420-15

**Recommendations:**

1. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>. (**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 4**)
3. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

4. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 2)**

**Figure 2 – Wipe Sample Locations (below)**



Sample WIHAW1



Sample WIHAW2



Sample WIHAW3



Sample WIHAW4



Sample WIHAW5

**Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Hartford Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
Wisconsin Army National Guard  
Hartford Armory  
Hartford, Wisconsin  
March 21, 2013

Location	Illumination (foot candles)
Classroom	5-30
Kitchen	50-55
Utility Room	10-35
Women's Restroom	30-50
Men's Restroom	35-50
Men's Shower	15-40
Weight Room	10-25
Conference Room	4-12
Recruiter's Office	20-45
Motor Office	34-45
Recon Platoon	34-42
Training NCO	28-37
Operations	34-38
Maintenance Bay	2-10
Supply and Unit Storage Room – Former IFR	2-18
Supply Room	7-23
Vault	23-57

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:  
ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices, maintenance bay, and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (RAC 4)

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of the NGB. This survey report was reviewed by Non-Responsive, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.



## Appendix A

**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

**Hartford Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B

## **Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

### **Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

### **Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Hartford, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 10997  
DFOH Lab Nos.: TM-13-60219 through TM-13-60224  
Date Received: 03/25/13  
Data Analyzed: 03/26/13 - 03/27/13  
Date Issued: 03/27/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



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## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIHAW1	TM-13-60219	<10	<91
WIHAW2	TM-13-60220	<10	<91
WIHAW3	TM-13-60221	19	172
WIHAW4	TM-13-60222	122	1109
WIHAW5	TM-13-60223	12	105
WIHAW5**	TM-13-60224	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sits

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**



Project 10997  
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[illegible]

## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Kenosha Armory  
4200 43<sup>rd</sup> Street  
Kenosha, Wisconsin

Survey date: March 18, 2011

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

May 8, 2011



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- I. Executive Summary
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- III. Site Description
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- V. Findings, Discussion, and Recommendations

## Appendices

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

**I. Executive Summary**

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Wisconsin Army National Guard, Kenosha Armory, located in Kenosha, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Kenosha Armory was built in 1986 and serves as the base of operations for B Company 257<sup>th</sup> BSB, J RSP. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Kenosha Armory had an indoor firing range that was closed and remodeled in 2009. The armory is available for rental for community activities that may include the civil air patrol and an adult karate class.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for lead contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. At present, there are no regulated or recommended levels for surface levels of lead in military facilities. There are no OSHA regulated levels for lead on surfaces. For the purposes of this report, any level of lead that exceeds 200 ug/ft<sup>2</sup> is considered significant. One of the surface wipe sample results exceeded the above criteria. A sample collected in the former indoor firing range in a corner near the bullet trap area had a lead concentration of 1,673 ug/ft<sup>2</sup>.

The Kenosha Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Kenosha Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Wisconsin Army National Guard, Kenosha Armory, located in Kenosha, Wisconsin. This work was conducted under the Interagency Agreement between the U.S. Public Health Service (USPHS) Federal Occupational Health (FOH) and the West Region of the Army National Guard. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive** Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 18, 2011.

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 Kenosha Armory was built in 1986 and serves as the base of operations for B Company 257<sup>th</sup> BSB, J RSP. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Kenosha Armory had an indoor firing range that was closed and remodeled in 2009. The armory is available for rental for community activities that may include the civil air patrol and an adult karate class.



**Figure 1 – Kenosha Armory**

#### IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

#### V. Findings, Discussion, and Recommendations

The Kenosha Armory is the base of operations for B Company 257<sup>th</sup> BSB, J RSP. Site personnel reported weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

##### Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. At present, there are no regulated or recommended levels for surface levels of lead in military facilities. There are no OSHA regulated levels for lead on surfaces. For the purposes of this report, any level of lead that exceeds 200 ug/ft<sup>2</sup> is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample WKARW5 which was collected in the former indoor firing range (IFR) in a corner near the bullet trap area had a lead concentration of 1,673 ug/ft<sup>2</sup>.

The Kenosha Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Kenosha Armory  
Kenosha, Wisconsin  
March 18, 2011

Sample Number and Location	Lead (ug/ft <sup>2</sup> )
WKARW1, Drill Floor on Floor	<91
WKARW2, North Vault on Gun Rack	<91
WKARW3, Kitchen on Food Prep Counter	<91
WKARW4, Former IFR in Corner Near Firing Area	<91
WKARW5, Former IFR in Corner Near Bullet Trap Area	<b>1,673</b>
WKARW6, Field Blank	ND

Notes: 1) ug/ft<sup>2</sup>= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant." 3) ND = None Detected

**Recommendations:**

1. 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 4)**
2. Continue to clean the horizontal surfaces in work and storage areas. **(RAC 4)**
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 3)**

**Figure 2 – Wipe Sample Locations (below)**



Sample WKARW1



Sample WKARW2



Sample WKARW3



Sample WKARW4



Sample WKARW5

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Kenosha Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2  
Lighting Survey  
Wisconsin Army National Guard  
Kenosha Armory  
Kenosha, Wisconsin  
March 18, 2011

First Floor Location	Illumination (foot candles)
Drill Hall	25
Room 103, Classroom	25
Room 104, Classroom	23
Room 106, Unit Storage	9-15
Room 108, Unit Storage	6-8
Room 110, Learning Center	43
Room 111, T.A. Storage	14
Room 112, Storage	14
Room 113, Food Storage	25
Room 114, Kitchen	26
Room 115, Scullery	40
Room 116, M. TLT	15
Room 118, W. TLT	10
Room 119, Classroom	27
Room 121, Office	39
Room 122, Office	24
Room 123, Office	31
Room 124, Office	41
Room 125, Office	48
Room 126, Office	38
Room 127, Office	41
Room 128, Medical Section	94
Room 129, Facility Maintenance	9



Table 2 (continued)  
Lighting Survey  
Wisconsin Army National Guard  
Kenosha Armory  
Kenosha, Wisconsin  
March 18, 2011

Lower Level Location	Illumination (foot candles)
Room 2, Locker Room	9
Room 3, Men TLT	14
Room 5, Shower	22
Room 6, Locker Room	13
Room 7, Remodeled Physical Training Room	20
Room 8, Range Storage	6
Room 9, Locker Room	15
Room 10, WOM TLT	19
Room 11, Storage	2-6
Room 12, Boiler Room	3

Table 3  
Lighting Standards  
ANSI Standard RP-7-2001  
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. **(RAC 4)**

This survey was conducted by, and report written by **Non-Responsive**, CIH, CPE as a representative of Federal Occupational Health. This survey report was reviewed by **Non-Responsive**, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A

**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Safety and Occupational Health Manager

**Non-Responsive**

Health Technician

**Kenosha Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B

## **Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

### **Surface Sampling – Heavy Metals**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method. At present there are no regulated or recommended levels for surface levels of heavy metals in military facilities. For purposes of this report, any level of any metal that exceeds 200 ug/ft<sup>2</sup> is considered excessive (or significant).

### **Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Lighting levels were evaluated based on criteria established by the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) Recommended Practice for Lighting Industrial Facilities RP-7-2001 (ANSI/IESNA RP-7-2001).

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

Submitted By:

**Non-Responsive**

Reference Data: Lead  
Sampling Site: NGB: Kenosha, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 9940  
DFOH Lab Nos.: TM-11-49136 through TM-11-49141  
Date Received: 03/23/11  
Data Analyzed: 03/24/11 – 03/25/11  
Date Issued: 03/29/11

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



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**FOH ENVIRONMENTAL LABORATORY**

538 S. 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 <sup>2</sup> )
WKARW1	TM-11-49136	<10	<91
WKARW2	TM-11-49137	<10	<91
WKARW3	TM-11-49138	<10	<91
WKARW4	TM-11-49139	<10	<91
WKARW5	TM-11-49140	184	1673
WKARW6**	TM-11-49141	<10	<91

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft <sup>2</sup>	250 µg/ft <sup>2</sup>	400 µg/ft <sup>2</sup>

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**

JLH1301

Project 9940  
Page 2 of 2

[illegible]

## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Milwaukee Armory  
4108 North Richards Street  
Milwaukee, Wisconsin

Survey date: March 17, 2011

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

May 9, 2011

## Table of Contents

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

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



**I. Executive Summary**

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Wisconsin Army National Guard, Milwaukee Armory, located in Milwaukee, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Milwaukee Armory was built in 1930 and is the base of operations for HHC 157<sup>th</sup> MEB; C/132<sup>nd</sup> Support Battalion; HHS/1-121 FA; 32<sup>nd</sup> MP Company; and I/RSP Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. Site personnel reported that the armory had an indoor firing range (IFR) that was closed prior to 2004. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is available for rental for community activities that may include the following: VA Standdown; job fairs and GED graduation ceremonies.

Five samples were collected on representative surfaces in the facility and analyzed for lead. All of the sample results were below the limit of detection for lead. At present, there are no regulated or recommended criteria for surface levels of lead in military facilities. There are no OSHA regulated levels for lead on surfaces. For the purposes of this report, any level of lead that exceeds 200 ug/ft<sup>2</sup> is considered significant. None of the surface wipe sample results exceeded the above criteria. The Milwaukee Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices, classrooms and storage areas in the Milwaukee Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices, classrooms and storage areas.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Wisconsin Army National Guard, Milwaukee Armory, located in Milwaukee, Wisconsin. This work was conducted under the Interagency Agreement between the U.S. Public Health Service (USPHS) Federal Occupational Health (FOH) and the West Region of the Army National Guard. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 17, 2011.

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 Milwaukee Armory was built in 1930 and is the base of operations for HHC 157<sup>th</sup> MEB; C/132<sup>nd</sup> Support Battalion; HHS/1-121 FA; 32<sup>nd</sup> MP Company; and I/RSP Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. Site personnel reported that the armory had an indoor firing range (IFR) that was closed prior to 2004. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is available for rental for community activities that may include the following: VA Standdown; job fairs and GED graduation ceremonies.

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Milwaukee Armory**

## **V. Findings, Discussion, and Recommendations**

The Milwaukee Armory was built in 1930 and is the base of operations for HHC 157<sup>th</sup> MEB; C/132<sup>nd</sup> Support Battalion; HHS/1-121 FA; 32<sup>nd</sup> MP Company; and I/RSP Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no major vehicle maintenance is performed at the armory. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

### **Surface Wipe Samples**

Five samples were collected on representative surfaces in the facility and analyzed for lead. All of the sample results were below the limit of detection for lead. The results are contained in Table 1.

At present, there are no regulated or recommended criteria for surface levels of lead in military facilities. There are no OSHA regulated levels for lead on surfaces. For the purposes of this report, any level of lead that exceeds 200 ug/ft<sup>2</sup> is considered significant. None of the surface wipe sample results exceeded the above criteria. The Milwaukee Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Metals  
Wisconsin Army National Guard  
Milwaukee Armory  
Milwaukee, Wisconsin  
March 17, 2011

Sample Number and Location	Lead (ug/ft <sup>2</sup> )
WMARW1, Kitchen - on Countertop	<91
WMARW2, Drill Floor – on floor	<91
WMARW3, Maintenance Shop - on Desktop	<91
WMARW4, Classroom, East End of Former IFR – on floor	<91
WMARW5 32MP Supply Room - on Desktop	<91
WMARW6, Field Blank	ND

- 1) ug/ft<sup>2</sup>= micrograms per square foot of surface area.      2) **Bold** indicates that concentration was “significant.”  
3) ND = None Detected

**Recommendations:**

1. 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 4**)
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 3**)

**Figure 2 – Wipe Sample Locations (below)**



Sample WMARW1



Sample WMARW2



Sample WMARW3



Sample WMARW4



Sample WMARW5

### Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Milwaukee Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2  
Lighting Survey  
Wisconsin Army National Guard  
Milwaukee Armory, Milwaukee, Wisconsin  
March 17, 2011

Location – Basement Level	Illumination (foot candles)
Room 1, Classroom	34
Room 2, Classroom	19
Room 3, Classroom	39
Room 4, Kitchen	15
Room 5, Scullery	20
Room 7, Boiler Room	4
Room 8, Mechanical Room	2
Room 10, Office	14
Room 11, Maintenance Storage	9
Room 12 Women's Latrine	33
Room 13 Women's Shower	45
Room 14, Dark Room	25
Room 19, Office Area	32
Room 20, Mechanical Room	20
Room 21, Storage	4
Room 22, Office Area	30
Room 23, Mechanical Room	3

Table 2 (continued)  
Lighting Survey  
Wisconsin Army National Guard  
Milwaukee Armory  
Milwaukee, Wisconsin  
March 17, 2011

Location - First Floor	Illumination (foot candles)
Room 101 – Distance Learning Room	16
Room 101A – DLC Equipment Room	20
Room 102A - Office	19
Room 102B - Office	20
Room 102C - Office	26
Room 102D - Office	23
Room 102E - Office	12
Room 102F - Office	21
Room 102G - Office	20
Room 102H - Office	40
Room 103 – Office	29
Room 104 – Office	22
Room 105 – Office	16
Room 106 – Office	24
Room 107 – Office	64
Room 110 – Office	20
Room 111 – Office	41
Room 112 – Office	37
Room 113 – Storage	12
Room 116 – Office	21
Room 117 – Office	14
Room 118 – Office	23
Room 119 – Office	38
Room 120 – Office	20
Room 123 – Storage	45
Room 125 – Storage	7
Room 128 – TLT	24
Room 129 – Classroom	13
Room 131 – Office	15
Room 132 – Office	26
Room 133 – Office	28
Room 134 – Office	21
Room 135 – Office	46
Room 138 – Office	68
Room 139 – Office	44
Room 140 – Office	44
Room 141 – Office	51
Room 142 – Office	24
Supply Closet	8
Women's Lavatory	13
Room 146 – Office	17
Room 147 – Office	13
Room 148 – Office	15
Room 149 – Office	28
Room 151 – Office	39
Room 152 – Office	21
Room 153 – Office	38
Room 154 – Office	48
Room 155 – Office	32
Room 156 – Office	21
Recruiting Office	10
Supply Closet (Old IFR)	23
Office (Old IFR)	29
Classroom (Old IFR)	37
Maintenance Chase (Old IFR)	81
Room 161 – Vehicle Entry	25

Industrial Hygiene Survey  
Survey Date: March 17, 2011

Milwaukee Armory  
Milwaukee, Wisconsin

Facilities Shop	41
Facilities Office	9
Room 181 – Unit Storage	13
Room 183 – Unit Storage	15
Room 184 – Unit Storage	15
Room 186 – Unit Storage	49
Room 192 – Locker Room	14
Room 192A – Vestibule	5
Room 193 – Locker Room	8
Room 194 – Locker Room	10
Room 195 – Locker Room	9
Room 196 – Locker Room	9

Location - Second Floor	Illumination (foot candles)
Room 201 – Office Area	26
Room 203 – Exam	42
Room 204 – Exam	47
Room 205 – Exam	12
Room 206 – Exam	56
Room 207 – Physical Exam	59
Room 209 – Women's TLT	21
Room 210 – DEV	39
Room 211 – X-Ray	35
Room 212 – Lab	28
Room 213 – Men's TLT	30
Room 214 – Facilities Maintenance Storage	13
Room 215 – Office	34
Room 216 – Office	49
Room 217 – Office	40
Room 218 – Office	18
Room 219 – Office	45
Room 220 – Office	20
Stair Hall	14
Room 223 – Storage	4
Room 224 – Office	28
Room 225 – Office	66
Room 226 – Office	40
Room 227 – Office	55
Room 228 – Office Area	57
Room 229 – Office Area	60
Room 231 – Office Area	46
Room 232 – Office Area	57
Room 235 – Office Area	56
Room 238 – Training Aids Storage	7
Room 239 – Library/Classroom	44
Room 240 – Learning Center	20
Room 241 – Mechanical Room	3
Room 243 – Locker Room	7
Room 244 – Locker Room	12
Room 245 – Locker Room	4
Room 246 – Locker Room	12
Room 248 – Storage	6
Room 249 – Storage	4



Table 3  
Lighting Standards  
ANSI Standard RP-7-2001  
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. **(RAC 4)**

This survey was conducted by, and report written by **Non-Responsive**, CIH, CPE as a representative of Federal Occupational Health. This survey report was reviewed by **Non-Responsive**, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A

**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Safety and Occupational Health Manager

**Non-Responsive**

Health Technician

**Milwaukee Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B

## **Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

## **Surface Sampling – Heavy Metals**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90° to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method. At present there are no regulated or recommended levels for surface levels of heavy metals in military facilities. For purposes of this report, any level of any metal that exceeds 200 ug/ft<sup>2</sup> is considered excessive (or significant).

## **Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Lighting levels were evaluated based on criteria established by the American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IESNA) Recommended Practice for Lighting Industrial Facilities RP-7-2001 (ANSI/IESNA RP-7-2001).

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Milwaukee, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 9941  
DFOH Lab Nos.: TM-11-49142 through TM-11-49147  
Date Received: 03/23/11  
Data Analyzed: 03/24/11 – 03/25/11  
Date Issued: 03/29/11

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 9941  
Page 1 of 2



**FOH ENVIRONMENTAL LABORATORY**

638 S. 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 <sup>2</sup> )
WMARW1	TM-11-49142	<10	<91
WMARW2	TM-11-49143	<10	<91
WMARW3	TM-11-49144	<10	<91
WMARW4	TM-11-49145	<10	<91
WMARW5	TM-11-49146	<10	<91
WMARW6**	TM-11-49147	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft <sup>2</sup>	250 µg/ft <sup>2</sup>	400 µg/ft <sup>2</sup>

**Metals in Wipe Limits**  
**(based on one ft<sup>2</sup> sampled area)**

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**

JH11301

**Project 9941**  
**Page 2 of 2**

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. If there is a significant difference, a problem is identified.

## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Oconomowoc Armory  
1215 Wall Street  
Oconomowoc, Wisconsin

Survey date: March 22, 2013

Performed by

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

May 9, 2013

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



**I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Oconomowoc Armory, located in Oconomowoc, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Oconomowoc Armory was built in 1985 and it has about 26,014 square feet of floor space. The armory is the base of operations for Detachment 1 of the 32<sup>nd</sup> Military Police Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services (PMCS), and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey.

The Oconomowoc Armory had an indoor firing range that was closed in 2006 and converted to a weight room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Site personnel reported that the armory is not currently used for any community activities.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. One of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected in the vault, had a lead concentration of 284 ug/ft<sup>2</sup>. The Oconomowoc Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Oconomowoc Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Oconomowoc Armory, located in Oconomowoc, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 22, 2013.

The NGB 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 Oconomowoc Armory was built in 1985 and it has about 26,014 square feet of floor space. The armory is the base of operations for Detachment 1 of the 32<sup>nd</sup> Military Police Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services (PMCS), and that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey.

The Oconomowoc Armory had an indoor firing range that was closed in 2006 and converted to a weight room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Site personnel reported that the armory is not currently used for any community activities.

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Oconomowoc Armory**

## **V. Findings, Discussion, and Recommendations**

The Oconomowoc Armory is the base of operations for Detachment 1 of the 32<sup>nd</sup> Military Police Company. Site personnel reported that vehicle maintenance activities are mostly limited to PMCS. No vehicle maintenance was performed on the day of the survey.

The Oconomowoc Armory had an indoor firing range that was closed in 2006 and converted to a weight room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

### **Surface Wipe Samples**

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

One of the surface wipe sample results exceeded the NGB criteria. Sample WIOCW3, which was collected in the vault, had a lead concentration of 284 ug/ft<sup>2</sup>. The Oconomowoc Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in

work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Oconomowoc Armory  
Oconomowoc, Wisconsin  
March 22, 2013

Location	Sample #	Lead Concentration (ug/ft <sup>2</sup> )
Drill Floor	WIOCW1	<91
Kitchen	WIOCW2	<91
Vault	WIOCW3	<b>284</b>
Weight Room, Former IFR, at Firing Line	WIOCW4	<91
Weight Room, Former IFR, Impact Area	WIOCW5	<91
Field Blank	WIOCW6	ND

Note:

- 1) ug/ft<sup>2</sup> = micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was "significant."
- 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Lead	200	NG Pam 420-15

**Recommendations:**

1. 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 4**)
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

**Figure 2 – Wipe Sample Locations (below)**



Sample WIOCW1



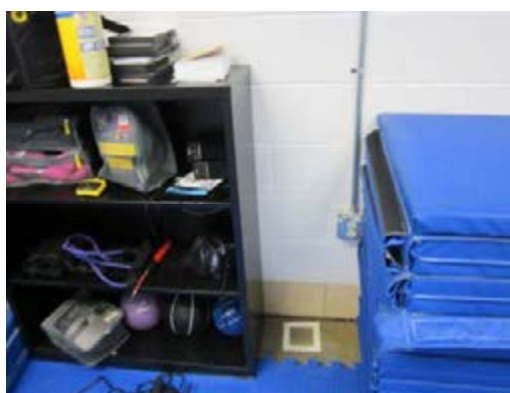
Sample WIOCW2



Sample WIOCW3



Sample WIOCW4



Sample WIOCW5

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Oconomowoc Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
Wisconsin Army National Guard  
Oconomowoc Armory  
Oconomowoc, Wisconsin  
March 22, 2013

Location	Illumination (foot candles)
Readiness Office	55-80
Commander's Office	55-65
1 <sup>st</sup> Sergeant Office	40-55
Recruiting Office	45-65
Men's Bathroom	90-110
Women's Bathroom	85-100
Office	30-44
Office	15-25
Locker Room – Second Floor	5-15
Utility Room	10-30
Drill Floor	20-40
Storage Room	30-45
Storage Office	30-40
Vault	15-35
Weight Room	20-35
Locker Room – First Floor	15-25
Kitchen	5-15
Classroom	25-45

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:  
ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (RAC 4)

This survey was conducted by, and report written by [Non-Responsive], CIH, CPE as a representative of the NGB. This survey report was reviewed by [Non-Responsive], Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.



## Appendix A

### **Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

### **Oconomowoc Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B

**Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

**Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

**Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Oconomowoc, WI (Armory)  
Sample Media: Ghost Wipe(s)<sup>®</sup>  
Method Reference: OSHA ID-121  
Project ID: Project 10998  
DFOH Lab Nos.: TM-13-60225 through TM-13-60230  
Date Received: 03/25/13  
Data Analyzed: 03/26/13 - 03/27/13  
Date Issued: 03/27/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 10998  
Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIOCW1	TM-13-60225	<10	<91
WIOCW2	TM-13-60226	<10	<91
WIOCW3	TM-13-60227	31	284
WIOCW4	TM-13-60228	<10	<91
WIOCW5	TM-13-60229	<10	<91
WIOCW6**	TM-13-60230	<10	<91

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**



Project 10998  
Page 2 of 2



\* *Asobolus* is important in *Ascaris* biology as it serves as its intermediate host. \* *Asobolus* is biodegradable and has little or no mass. \* *Asobolus* is important in the biology of the plant *A. thaliana* as it serves as its intermediate host.

## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Oshkosh Armory  
1415 Armory Place  
Oshkosh, Wisconsin

Survey date: March 14, 2013

Performed by

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

May 5, 2013

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## Appendices

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

**I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Oshkosh Armory, located in Oshkosh, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Oshkosh Armory was built in 1962 and it has about 22,424 square feet of floor space. The armory is the base of operations for the 1157<sup>th</sup> Transportation Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services. No vehicle maintenance was performed on the day of the survey. The Oshkosh Armory had an indoor firing range (IFR). Site personnel reported that it was closed in about 2010. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is available for rental for community activities that include girl scouts meetings.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. One of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected in the former IFR at the bullet trap (now a storage area) had a lead concentration of 31,818 ug/ft<sup>2</sup>. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>. The Oshkosh Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Oshkosh Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.



## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Oshkosh Armory, located in Oshkosh, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 14, 2013.

The NGB 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 Oshkosh Armory was built in 1962 and it has about 22,424 square feet of floor space. The armory is the base of operations for the 1157<sup>th</sup> Transportation Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services (PMCS). No vehicle maintenance was performed on the day of the survey. The Oshkosh Armory had an indoor firing range (IFR). Site personnel reported that it was closed in about 2010. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include girl scouts meetings.

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Oshkosh Armory**

## **V. Findings, Discussion, and Recommendations**

The Oshkosh Armory is the base of operations for the 1157<sup>th</sup> Transportation Company. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to PMCS. No vehicle maintenance was performed on the day of the survey. The Oshkosh Armory had an indoor firing range. Site personnel reported that it was closed in about 2010. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include girl scouts meetings.

### **Surface Wipe Samples**

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

One of the surface wipe sample results exceeded the NGB criteria. Sample WIOSW4, which was collected in the former IFR at the bullet trap (now a storage area) had a lead concentration of 31,818 ug/ft<sup>2</sup>. The closed indoor firing range should be cleaned up as specified by the procedures

contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>. The Oshkosh Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Oshkosh Armory  
Oshkosh, Wisconsin  
March 14, 2013

Location	Sample #	Lead Concentration (ug/ft <sup>2</sup> )
Weapons Vault, on Table	WIOSW1	192
Drill Floor, on Floor, Center	WIOSW2	<91
Storage, Former IFR, Center	WIOSW3	<91
Storage, Former IFR, Bullet Trap	WIOSW4	<b>31,818</b>
Classroom, on Table Top	WIOSW5	<91
Field Blank	WIOSW6	ND

Note:

- 1) ug/ft<sup>2</sup> = micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was "significant."
- 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Lead	200	NG Pam 420-15

**Recommendations:**

1. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>. (**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 4**)
3. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

4. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 2)**

**Figure 2 – Wipe Sample Locations (below)**



Sample WIOSW1



Sample WIOSW2



Sample WIOSW3



Sample WIOSW4



Sample WIOSW5

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Oshkosh Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
Wisconsin Army National Guard  
Oshkosh Armory  
Oshkosh, Wisconsin  
March 14, 2013

Location	Illumination (foot candles)
Supply Room	17-32
Room 12, Office	50-70
Maintenance Bay	17-21
Weight Room	25-35
Storage	38-52
Mechanical Room	1-58
Storage	55-65
Classroom	25-40
Kitchen	40-75
Janitor Closet	25-45
Locker Room Two	30-42
Locker Room One	25-35
Men's Latrine	40-95
Men's Shower	33-45
Room 33, Office	25-30
Room 34, Office	25-40
Room 9	65-70
Room 3	55-65
Room 4, Office	18-28
Room 5, Office	65-70
Room 6, Office	65-75
Room 7, Office	20-35
Room 8, Office	55-60
Vault 1	45-55
Vault 2, Weapons	25-40

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:  
ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (RAC 4)

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of the NGB. This survey report was reviewed by Non-Responsive, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A



**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

**Oshkosh Armory Point of Contact**

**Non-Responsive** – POC

## Appendix B

## Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

### **Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

### **Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Oshkosh, WI (Armory)  
Sample Media: Ghost Wipe(s)<sup>®</sup>  
Method Reference: OSHA ID-121  
Project ID: Project 10980  
DFOH Lab Nos.: TM-13-60081 through TM-13-60086  
Date Received: 03/18/13  
Data Analyzed: 03/20/13 - 03/21/13  
Date Issued: 03/21/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 10980  
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## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIOSW1	TM-13-60081	21	192
WIOSW2	TM-13-60082	<10	<91
WIOSW3	TM-13-60083	<10	<91
WIOSW4	TM-13-60084	3500	31818
WIOSW5	TM-13-60085	<10	<91
WIOSW6**	TM-13-60086	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**



Project 10980  
Page 2 of 2

# Non-Responsive



## Appendix D

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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Ripon Armory  
707 E. Fond du Lac Street  
Ripon, Wisconsin

Survey date: March 18, 2013

Performed by

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

May 7, 2013

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

**I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Ripon Armory, located in Ripon, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Ripon Armory was built in 1957 and it has about 16,196 square feet of floor space. The armory is the base of operations for Detachment 1 Company A, 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends. No vehicle maintenance was performed on the day of the survey. The Ripon Armory had an indoor firing range that was closed prior to 2002 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include a youth wrestling club and American Legion cookouts.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. None of the surface wipe sample results exceeded the NGB criteria for lead. The Ripon Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Ripon Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Ripon Armory, located in Ripon, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 18, 2013.

The NGB 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 Ripon Armory was built in 1957 and it has about 16,196 square feet of floor space. The armory is the base of operations for Detachment 1 Company A, 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry, for about six months of the year. During the week, most of the activities at the armory involve administrative work. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends. No vehicle maintenance was performed on the day of the survey. The Ripon Armory had an indoor firing range that was closed prior to 2002 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include a youth wrestling club and American Legion cookouts.

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.





**Figure 1 – Ripon Armory**

## **V. Findings, Discussion, and Recommendations**

The Ripon Armory is the base of operations for Detachment 1 Company A, 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry. Site personnel reported that vehicle maintenance activities are mostly limited to preventive maintenance checks and services on drill weekends. No vehicle maintenance was performed on the day of the survey. The Ripon Armory had an indoor firing range that was closed prior to 2002 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that include a youth wrestling club and American Legion cookouts.

### **Surface Wipe Samples**

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

None of the surface wipe sample results exceeded the NGB criteria. The Ripon Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand

washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Ripon Armory  
Ripon, Wisconsin  
March 18, 2013

Location	Sample #	Lead Concentration (ug/ft <sup>2</sup> )
Drill Floor, Center	WIRIW1	<91
Vault, on Floor	WIRIW2	173
Locker Room, Former IFR, at Firing Line	WIRIW3	114
Locker Room, Former IFR, at Bullet Trap	WIRIW4	<91
Locker Room, Former IFR, at Bullet Trap	WIRIW5	<91
Field Blank	WIRIW6	ND

Note:

- 1) ug/ft<sup>2</sup> = micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was "significant."
- 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Lead	200	NG Pam 420-15

**Recommendations:**

1. 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 4**)
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

**Figure 2 – Wipe Sample Locations (below)**



Sample WIRIW1



Sample WIRIW2



Sample WIRIW3



Sample WIRIW4



Sample WIRIW5

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Ripon Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
Wisconsin Army National Guard  
Ripon Armory  
Ripon, Wisconsin  
March 18, 2013

Location	Illumination (foot candles)
Classroom	33-47
Kitchen	28-42
Women's Bathroom	26-35
Utility Room	13-15
Men's Bathroom	37-47
Supply Room	12-25
Boiler Room	8-10
Locker Room – Former IFR	8-28
Drill Floor	14-36
Small Classroom	12-18
Weight Room	15-29

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:  
ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (**RAC 4**)

---

This survey was conducted by, and report written by [Non-Responsive], CIH, CPE as a representative of the NGB. This survey report was reviewed by [Non-Responsive], Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A

**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

**Ripon Armory Point of Contact**

**Non-Responsive** – POC



## Appendix B

## **Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

### **Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

### **Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Ripon, WI (Armory)  
Sample Media: Ghost Wipe(s)®  
Method Reference: OSHA ID-121  
Project ID: Project 10986  
DFOH Lab Nos.: TM-13-60130 through TM-13-60135  
Date Received: 03/21/13  
Data Analyzed: 03/22/13 - 03/25/13  
Date Issued: 03/27/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



Project 10986  
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## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIRIW1	TM-13-60130	<10	<91
WIRIW2	TM-13-60131	19	173
WIRIW3	TM-13-60132	13	114
WIRIW4	TM-13-60133	<10	<91
WIRIW5	TM-13-60134	<10	<91
WIRIW6**	TM-13-60135	<10	<91

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

Non-Responsive



Project 10986  
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## Appendix D



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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

# Industrial Hygiene Survey Report

At

Wisconsin Army National Guard  
Waupun Armory  
315 North Grove Street  
Waupun, Wisconsin

Survey date: March 15, 2013

Performed by

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

May 6, 2013

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

**I. Executive Summary**

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Wisconsin Army National Guard, Waupun Armory, located in Waupun, Wisconsin. This survey was conducted as part of the Army National Guard occupational safety and health program to evaluate potential personnel exposure to contaminants generated during typical activities performed at this facility.

The Waupun Armory was built in 1961 and it has about 23,391 square feet of floor space. The armory is the base of operations for Company A 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the armory had an indoor firing range that was closed in about 2003 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey.

Nine samples were collected on representative surfaces in the facility and analyzed for lead. Two of the surface wipe sample results exceeded the NGB criteria. Both of them were collected in the former IFR. A sample collected at the firing line area in the former IFR (which is now a locker room), had a lead concentration of 568 ug/ft<sup>2</sup>. A sample collected on the top of a locker in the locker room, (in the closed IFR), had a lead concentration of 328 ug/ft<sup>2</sup>.

The elevated lead concentrations in the closed IFR are repeat findings that were identified in industrial hygiene surveys that were performed on 6/9/2011 and 6/28/2011. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>.

The Waupun Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

A lighting survey was conducted in the offices and storage areas in the Waupun Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.

## **II. Introduction**

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Wisconsin Army National Guard, Waupun Armory, located in Waupun, Wisconsin. This survey was conducted in order to identify exposure levels to hazardous chemical, physical, and biological agents occurring to Army National Guard employees while engaged in a full range of work responsibilities and tasks. **Non-Responsive**, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 15, 2013.

The NGB 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 Waupun Armory was built in 1961 and it has about 23,391 square feet of floor space. The armory is the base of operations for Company A 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. Site personnel reported that the armory had an indoor firing range that was closed in about 2003 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that have included use as a skate park for skateboards (summer 2012).

## **IV. Scope of Work**

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.



**Figure 1 – Waupun Armory**

## **V. Findings, Discussion, and Recommendations**

The Waupun Armory is the base of operations for Company A 2<sup>nd</sup> Battalion 127<sup>th</sup> Infantry. Site personnel reported that no vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. Site personnel reported that the armory had an indoor firing range that was closed in about 2003 and converted to a locker room. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is available for rental for community activities that have included use as a skate park for skateboards (summer 2012).

### **Surface Wipe Samples**

Nine samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

Two of the surface wipe sample results exceeded the NGB criteria. Both were collected in the former IFR. Sample WIWAW6, which was collected at the firing line area in the former IFR (which is now a locker room), had a lead concentration of 568 ug/ft<sup>2</sup>. Sample WIWAW7, which



was collected on the top of a locker in the locker room, (in the closed IFR), had a lead concentration of 328 ug/ft<sup>2</sup>.

The elevated lead concentrations in the closed IFR are repeat findings that were identified in industrial hygiene surveys that were performed on 6/9/2011 and 6/28/2011. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>.

The Waupun Armory should continue to prohibit the presence of food and drink in work areas, stress the importance of hand washing prior to the consumption of food items and continue to clean the horizontal surfaces in work and storage areas. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

Table 1  
Surface Area Wipe Sampling Results for Lead  
Wisconsin Army National Guard  
Waupun Armory  
Waupun, Wisconsin  
March 15, 2013

Location	Sample #	Lead Concentration (ug/ft <sup>2</sup> )
Vault Floor	WIWAW1	<91
Drill Floor, on Floor	WIWAW2	<91
Kitchen, on Oven	WIWAW3	<91
Tactics Classroom, on Floor	WIWAW4	<91
Maintenance Bay Bench	WIWAW5	127
Locker Room, Former IFR, Firing Line, on floor	WIWAW6	<b>568</b>
Locker Room, Former IFR, on Top of Locker	WIWAW7	<b>328</b>
Locker Room, Former IFR, SW Corner, at Bullet Trap Area	WIWAW8	<91
Locker Room, Former IFR, SE Corner, at Bullet Trap Area	WIWAW9	<91
Field Blank	WIWAW10	ND

Note:

- 1) ug/ft<sup>2</sup> = micrograms per square foot of surface area.
- 2) **Bold** indicates that concentration was "significant."
- 3) ND = None Detected

Table 2  
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft <sup>2</sup>	Basis for Criteria
Lead	200	NG Pam 420-15

**Recommendations:**

1. The closed indoor firing range should be cleaned up as specified by the procedures contained in NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges. Residual lead contamination of surfaces must be less than 200 ug/ft<sup>2</sup>. This is a repeat of a finding that was identified in industrial hygiene surveys that were performed on 6/9/2011 and 6/28/2011. **(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 4)**
3. Continue to clean the horizontal surfaces in work and storage areas. **(RAC 4)**
4. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. **(RAC 2)**

**Figure 2 – Wipe Sample Locations (below)**



Sample WIWAW1



Sample WIWAW2



Sample WIWAW3



Sample WIWAW4



Sample WIWAW5



Sample WIWAW6



Sample WIWAW7



Sample WIWAW8



Sample WIWAW9

### **Lighting Survey**

A lighting survey was conducted in the offices and storage areas in the Waupun Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3  
Lighting Survey  
Wisconsin Army National Guard  
Waupun Armory  
Waupun, Wisconsin  
March 15, 2013

Location	Illumination (foot candles)
Classroom	30-36
Male Bathroom	35-50
Maintenance Room	25-40
Kitchen	50-65
Office	25-30
Classroom	18-36
Maintenance Bay	6-10
Drill Floor	55-70
Boiler Room	12-24
Vault	20-22
Supply Room	10-18
Classroom	65-70
Office	8-15
Administration Office	18-28
1 <sup>st</sup> Sergeant Office	32-40
CDR Office	20-26
Locker Room	5-13

Table 4  
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

## Sources:

ANSI/IESNA RP-1-04  
ANSI/IESNA RP-7-01  
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.

**Recommendation:**

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (RAC 4)

This survey was conducted by, and report written by [Non-Responsive], CIH, CPE as a representative of the NGB. This survey report was reviewed by [Non-Responsive], Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

## Appendix A

**Wisconsin Army National Guard State Points of Contact**

**Non-Responsive**

Occupational Health Nurse

**Non-Responsive**

Industrial Hygiene Technician

**Waupun Armory Point of Contact**

**Non-Responsive** – POC



## Appendix B

**Methodology and Assessment Criteria**

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

**Surface Sampling – Lead**

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm<sup>2</sup>) of surface area. The entire area was wiped using an “S” configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90<sup>0</sup> to the first using an “S” motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

**Lighting Levels**

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer’s specifications. Illumination levels were recorded as foot candles.

## Appendix C



## FOH ENVIRONMENTAL LABORATORY

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

### ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health  
Denver Federal Center  
Denver, CO 80225

Attention:

**Non-Responsive**

Submitted By:

Reference Data: Lead  
Sampling Site: NGB: Waupun, WI (Armory)  
Sample Media: Ghost Wipe(s)<sup>®</sup>  
Method Reference: OSHA ID-121  
Project ID: Project 10981  
DFOH Lab Nos.: TM-13-60087 through TM-13-60096  
Date Received: 03/18/13  
Data Analyzed: 03/20/13 - 03/21/13  
Date Issued: 03/21/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

#### General Lab Comments:

All quality control criteria have been met.

\* All samples received in condition acceptable for analysis unless otherwise noted.

\*\* Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

**Non-Responsive**



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## FOH ENVIRONMENTAL LABORATORY

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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WIWAW1	TM-13-60087	<10	<91
WIWAW2	TM-13-60088	<10	<91
WIWAW3	TM-13-60089	<10	<91
WIWAW4	TM-13-60090	<10	<91
WIWAW5	TM-13-60091	14	127
WIWAW6	TM-13-60092	63	568
WIWAW7	TM-13-60093	36	328
WIWAW8	TM-13-60094	<10	<91
WIWAW9	TM-13-60095	<10	<91
WIWA10**	TM-13-60096	<10	

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

### Metals in Wipe Limits (based on one ft<sup>2</sup> sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft <sup>2</sup>	10 µg/ft <sup>2</sup>

**Non-Responsive**



Project 10981  
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## Non-Responsive

## Appendix D



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

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	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) ≤ = 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

Type of Exposure	Length 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	B
5-9	C
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5