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:

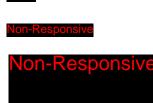
# • Clean the horizontal surfaces where toxic metals may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

- 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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 (µg/ft²)	Cadmium (μg/ft <sup>2</sup> )
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 9, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)
	Surface Guide	200	28	
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)  $\mu g/ft^2$  = 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



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.





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# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/ft <sup>3</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	- Activ		

## CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>3</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			
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/m²	10 µp/17
Cadmium	OSHA ID-121	0.5 µg/m²	1.0 µg/t <sup>2</sup>





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\* 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 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  $\mu$ g/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 IFR, had a lead concentration of 2,388  $\mu$ g/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 IFR, had a lead concentration of 692  $\mu$ g/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 Antigo Armory. Eleven of the areas surveyed did not meet minimum illumination requirements. <u>The following actions are required:</u>

• 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





Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup>. Sample WANW6, which was collected on the floor in the southwest corner of the bullet trap area in the former indoor firing range, had a lead concentration of 692  $\mu$ g/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 (µg/ft²)	Cadmium (μg/ft²)
	Surface Guide	200	28	
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		2,388	8.3
WANW6	Locker room, former IFR, at bullet trap, SW corner on floor		692	4.6

Industrial Hygiene Survey Survey date: October 8, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	200	28	
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)  $\mu g/ft^2 =$  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



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.





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## FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 886-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/ft <sup>2</sup> )		
WANW1	TM-15-74512	112	112		
WANW2	TM-15-74513	28	28		
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	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>3</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
WANWB	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/m²	10 µg/12
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/tt <sup>2</sup>





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

\* 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 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  $\mu$ g/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  $\mu$ g/ft<sup>2</sup>. Sample WASW6, which was collected on the floor in the vault, had a cadmium concentration of 42  $\mu$ g/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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup>. Sample WASW3, which was collected on the floor in storage, had a lead concentration of 836  $\mu$ g/ft<sup>2</sup>. Sample WASW6, which was collected on the floor in the vault, had a cadmium concentration of 42  $\mu$ g/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 (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	line	200	28
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

Industrial Hygiene Survey Survey date: October 7, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (μg/ft²)
	Surface Guide	line	200	28
WASW7	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)  $\mu g/ft^2 =$  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



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.





Project 12222 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 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	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/m²	10 µp/17
Cadmlum	OSHA ID-121	0.5 µg/π <sup>2</sup>	1.0 µg/tt <sup>2</sup>





Project 12222 Page 2 of 2

538 S. Clark Street South, Suite 714 Chicago, IL 69895-1521 Tel. (312) 056-0413 Fax: (312)-886-0/34		Agreement A 106644					Project Report # 2,2,2,2,2,1,4 Bue Date: Samples Revolved Chiltod? YES 100 fatcle one) Fac											
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US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

\* 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  $\mu$ g/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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/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 Elkhorn Armory Elkhorn, Wisconsin August 26, 2014

Sample #	Location	Photo	Lead (µg/ft²)					
	Surface Guideline							
WEAW1	Vault, on floor		261					
WEAW2	Fitness room, former IFR, at firing line, on floor	No.	<10					
WEAW3	Locker room, former IFR, midrange, on floor	NORTHERN AND A DESCRIPTION OF A DESCRIPR	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					

Sample #	Location	Photo	Lead (µg/ft²)
	200		
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)  $\mu g/ft^2 =$  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



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.





Project 12007 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 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 µ0/ft <sup>2</sup>	250 µ0/17 <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 Limi
Lead - Flame AA	OSHA ID-121	5.0 uo't	10 40%





Project 12007 Page 2 of 2

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\* 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  $841 \mu g/ft^2$ . The following actions are required:

- Clean the horizontal surfaces of the kitchen, room 102 and maintenance areas using highefficiency 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.

For any further questions, please contact Non-Responsive

Non-Responsive



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/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  $\mu$ g/ft<sup>2</sup>.

#### **Recommendations:**

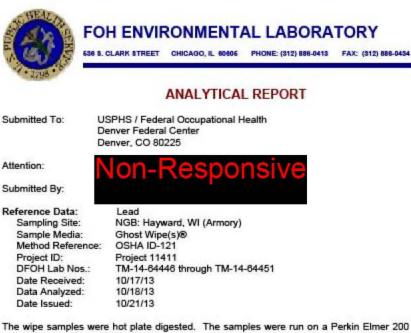
- 1. Clean the horizontal surfaces of the kitchen, room 102, and maintenance areas using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).
- 2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption 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	Location Photo					
	Surface Guideline						
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		841				
WHAW5	Drill Floor, Center on Floor		152				
WHAW6	Field blank	N/A	ND				

Notes: 1)  $\mu g / ft^2$  = 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



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.





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A-3



### FOH ENVIRONMENTAL LABORATORY

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

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (#9)	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	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sils

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHAID-121	5.0 up/t <sup>2</sup>	10 µa/6*





Project 11411 Page 2 of 2

A-4

FOIA Requested Record #J-15-0085 (WI) Released by National Guard Bureau Page 38 of 390

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

ARNG-CSG-P

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 Northesponsive.

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.

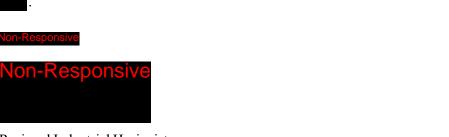
The armory is available for rental for community activities that include the annual Christmas party. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Lead – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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).

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#### 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 (µg/ft²)
	Surface Guidel	ine	200
WJAW1	Vault, on floor		112
WJAW2	Maintenance bay, former IFR, at firing line, on flammable liquid storage cabinet	FLAMINA	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

A-2

Sample #	Location	Photo	Lead (µg/ft²)
	200		
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)  $\mu g/ft^2 =$  micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.

BEST AVAILABLE COPY

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



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.





Project 12006 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 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	
8WALW	TM-14-71373	<10	<10	
ewalw9	TM-14-71374	<10	<10	
WJAW10"	TM-14-71375	<10		

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 ug/ft <sup>2</sup>	250 ug/1 <sup>2</sup>	400 µa/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 uo't'	10 up/1





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A-5

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

\* 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.

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

#### ARNG-CSG-P

April 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  $\mu$ g/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).

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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

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

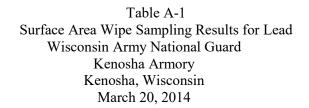
#### Appendix A Lead – Wipe Sampling

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

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup>.



Sample #	Location	Lead (µg/ft²)	
	200		
WKARW21	Room 103, Classroom 2, on table		<91
WKARW22	Room 114, Kitchen, on counter*		<91

Sample #	Location	Photo	Lead (µg/ft²)
	200		
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)  $\mu g/ft^2$  = 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



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.





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 (#9)	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>	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 uott	10 4012





Project 11656 Page 2 of 2

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

#### ARNG-CSG-P

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-Responsiv



Regional Industrial Hygienist

#### Appendix Title

A. Laboratory Result Reports and Chain of Custody Sheets

2



#### Kenosha Armory

#### <u>Lead – Wipe Sampling</u>

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

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost<sup>TM</sup> 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  $\mu g/ft^2$ .

May, 2018

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

Sample #	Location	Photo	Lead (µg/ft²)
	Surface Guide	ine	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 (µg/ft <sup>2</sup> )
	ine	200	
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)  $\mu g/ft^2$  = 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

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Non-Responsive

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# Non-Responsive

COMMENTS: \* Applied to on

Posted to NGB FOIA Reading Room May, 2018

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FOIA Requested Record #J-15-0085 (WI) Released by National Guard Bureau Page 62 of 390 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Lead – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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	Lead (µg/ft²)	
	200		
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

Sample #	Location	Photo	Lead (µg/ft²)
	200		
WIMNW3	Kitchen, on Serving Table		<91
WIMNW4	Drill Floor, Center, on Floor	A REAL	<91
WIMNW5	Room 128, Vault, on Floor		124
WIMNW6	Field Blank	N/A	ND

Notes: 1)  $\mu g/ft^2$  = 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



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.





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 (#g)	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>	Basis for Criteria
cad	250	EPA TSCA 40 CFR 745 and HUD Window Silis

#### 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 uo/tt <sup>2</sup>	10 up/12





Project 11568 Page 2 of 2

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FOIA Requested Record #J-15-0085 (WI) Released by National Guard Bureau Page 69 of 390 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	Lighting	Attached

#### 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<sup>TM</sup> 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).

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#### 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 (µg/ft²)	Cadmium (μg/ft <sup>2</sup> )
	Surface Guide	200	28	
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	2.0	<10	<1.0
WMARW6	Drill floor, center on floor	*	<10	<1.0

Industrial Hygiene Survey Survey date: October 10, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)
	Surface Guide	200	28	
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)  $\mu g/ft^2$  = 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



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.





Project 12224 Page 1 of 2

A-4



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/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		
WMARWS	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	- 700		

#### 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 Ortlana Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH7519D Rev 18 5/10/11		
Cadmium	28			
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/m²	10 µg/12
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/tt <sup>2</sup>





Project 12224 Page 2 of 2

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

\* 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.

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

#### ARNG-CSG-P

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.

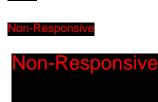
Wipe samples were collected on representative surfaces in the facility and analyzed for toxic metals (lead and cadmium). For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. One of the surface wipe sample results 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  $\mu$ g/ft<sup>2</sup>. <u>The following actions are required:</u>

- 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/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).

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#### 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 (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	200	28	
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	8	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		509	3.0
WMEDW6	Drill floor, center on floor		<10	<1.0

Industrial Hygiene Survey Survey date: October 9, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	line	200	28
WMEDW7	Kitchen, on counter top		<10	<1.0
WMEDW8	Vault, on floor	e	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)  $\mu g/ft^2$  = 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



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.





Project 12219 Page 1 of 2



## FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (HS)	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		
WMEDWS	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/m²	10 µp/12
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/t <sup>2</sup>





Project 12219 Page 2 of 2

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

\* 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 (-10 business days

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

#### ARNG-CSG-P

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  $\mu$ g/ft<sup>2</sup> and a cadmium concentration of 70  $\mu$ g/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 Merrill Armory. Twelve of the areas surveyed did not meet minimum illumination requirements. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup> and a cadmium concentration of 70  $\mu$ g/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 (µg/ft²)	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	line	200	28
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

Industrial Hygiene Survey Survey date: October 8, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	Surface Guideline 200 28			
WMEW7	Kitchen, on microwave		<10	<1.0	
WMEW8	Room 10B, Classroom, on desktop		<10	<1.0	
WMEW9	Vault, on floor		286	70	
WMEW10	Readiness NCO office, on desktop		<10	<1.0	
WMEW11	Field blank	N/A	ND	ND	

Notes: 1)  $\mu g/ft^2 =$  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



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.





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# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 886-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (HS)	CONCENTRATION (µp/ft <sup>a</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	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	Metal Acceptable Surface Level Basis for Criteria µg/ft <sup>2</sup>			
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/m²	10 µp/12
Cadmlum	OSHA ID-121	0.5 µg/1 <sup>2</sup>	1.0 µg/tt <sup>2</sup>





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

\* 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.

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

#### ARNG-CSG-P

April 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Lead – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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	Lead (µg/ft²)	
	200		
WMIAW21	MP Office, Former IFR, at Bullet Trap, on Floor		<91
WMIAW22	MP Office, Former IFR, at Firing Line, on Floor		<91

Sample #	Location	Photo	Lead (µg/ft²)
	200		
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)  $\mu g/ft^2$  = 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



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.





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# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60805 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (#9)	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 Silis		

#### 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 up/t	10 4012





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

\* 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.

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

#### ARNG-CSG-P

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. <u>The following actions are required:</u>

• 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

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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





Regional Industrial Hygienist

Appendix<br/>A.Title<br/>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<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup> and sample WMIAW36, which was collected on the floor in the 157<sup>th</sup> weapons vault, had a lead concentration of 255  $\mu$ g/ft<sup>2</sup>.

Sample WMIAW38 which was collected on the desktop in the ID card office had a lead concentration of  $51 \ \mu g/ft^2$ . 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 (µg/ft²)
	Surface Guide	line	200
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	No los	44
WMIAW35	NW corner at firing line on floor – former IFR		20

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
	Surface Guide	line	200
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)  $\mu g/ft^2$  = 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 ug/ft<sup>2</sup> (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 Chin of Custody Sheets



# Non-Responsive

Non-Responsive

BEST AVAILABLE COPY





# Non-Responsive

Posted to NGB FOIA Reading Room May, 2018

BEST AVAILABLE COPY

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FOIA Requested Record #J-15-0085 (WI) Released by National Guard Bureau Page 109 of 390 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. <u>The following actions are required:</u>

# • 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





Regional Industrial Hygienist

Appendix	Title	Status
A.	Metals – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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 (µg/ft²)	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 9, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	200	28	
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)  $\mu g/ft^2 =$  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



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.





Project 12220 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/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	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>	Back 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/m²	10 µp/12
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/t <sup>2</sup>





Project 12220 Page 2 of 2

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

\* 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. <u>The following actions are required:</u>

• 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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 (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 6, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	200	28	
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)  $\mu g/ft^2$  = 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



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.





Project 12213 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (HS)	CONCENTRATION (µp/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	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
WNRWB	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/m²	10 µg/t <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





Project 12213 Page 2 of 2

A-5

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

\* 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  $\mu$ g/ft<sup>2</sup>. 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  $\mu$ g/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).

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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Lead – Wipe Sampling	Attached
В.	Lighting	Attached

# Appendix A Lead – Wipe Sampling

# **Surface Area Wipe Samples**

Wipe samples were collected from representative areas of the facility using Environmental Express  $Ghost^{TM}$  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  $\mu$ g/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  $\mu$ g/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 (µg/ft <sup>2</sup> )
	Surface Guidel	ine	200
WOAW11	Vault 1, on floor		41
WOAW12	Vault 2, on floor		60
WOAW13	Maintenance bay, on flammable liquid storage cabinet	SPILL KIT SET	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

Sample #	Location	Photo	Lead (µg/ft²)						
	Surface Guideline								
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)  $\mu g/ft^2 =$  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



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.





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# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60805 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	250 µg/ft	400 µg/ft*

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/m²	10 µp/tt <sup>2</sup>
Lead - Furnace AA	OSHA D-121	0.25 µg/tt <sup>2</sup>	0.50 µp/t





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

\* 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

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. <u>The following actions are required:</u>

- 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





Regional Industrial Hygienist

Appendix<br/>A.Title<br/>Laboratory Result Reports and Chain of Custody Sheets

2



# **Oshkosh Armory**

# Lead – Wipe Sampling

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

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost<sup>TM</sup> 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.

3

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

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )
	Surface Guide	ine	200
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	Lead (µg/ft <sup>2</sup> )	
	200		
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)  $\mu g/ft^2$  = 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



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

General Lab Comments:

Date Issued:

All quality control criteria have been met.

07/01/15

\* 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.

Maturta

Ms. Edna A. Bautista Technical Manager

Muhalle & Stranger

Ms. Michelle C. Stemmons Laboratory Director



Project 12904 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

538 8. CLARK STREET CHICAGO, IL 60606 PHONE: (312) 888-0418 FAX: (312) 888-0434

#### LEAD on WIPE RESULTS

SAMPLE	LABORATORY	CONCENTRATION	CONCENTRATION
NUMBER*	NUMBER	(µg)	(µQ/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 2005, http://www.nobodc.nob.amv.mil/oubs/420/nopam420_15.odf
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 2005, http://www.nobodc.nob.armv.mil/oubs/420/hopam420_15.odf

# 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/tt <sup>2</sup>	10 µg/tt <sup>2</sup>

Ms. Edna A. Bautista Technical Manager



Project 12904 Page 2 of 2

Glark Streat South, go, IL 60605-1521 12)-885-9415 Fax:					ł	Agreen No.: Staters of Work	ont	* 1064 \$ 188			Due Dale: Samples F	in inger	i ng sina ta	7/7/ 17/ YEB	69) 111	(dinda ona) admost ita di si admost Standardi	1.1.18	140	Rev. 0
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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

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

#### ARNG-CSG-P

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 Rhinelander Armory. Fourteen of the areas surveyed did not meet minimum illumination requirements. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	Lighting	Attached

# Appendix A Metals – Wipe Sampling

# **Surface Area Wipe Samples**

The Rhinelander 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<sup>TM</sup> 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
Rhinelander Armory
Rhinelander, Wisconsin
October 8, 2014

Sample #	Location	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)	
	Surface Guide	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

A-1

Industrial Hygiene Survey Survey date: October 8, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	line	200	28
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	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)	
	Surface Guide	200	28	
WRHIW10	Family readiness office, on desktop		<10	<1.0
WRHIW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu g/ft^2 =$  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



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.





Project 12212 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 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
WRH/W3	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
WRH/W8	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	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )
WRHW1	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 Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11		
Cadmium	28			
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/m²	10 µg/1
Cadmlum	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





Project 12212 Page 2 of 2

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

\* 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.

BEST AVAILABLE COPY

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  $5,510 \mu g/ft^2$ . 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 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	Lighting	Attached

# Appendix A Metals – Wipe Sampling

### **Surface Area Wipe Samples**

Wipe samples were collected from representative areas of the facility using Environmental Express  $Ghost^{TM}$  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  $5,510 \mu g/ft^2$ .

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	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	200	28	
WRLW1	Storage, former IFR, behind firing line on floor		188	3.3
WRLW2	Storage, former IFR, at firing line on floor	The second secon	125	1.6

Industrial Hygiene Survey Survey date: October 6, 2014

Sample #	Location	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	line	200	28
WRLW3	Storage, former IFR, midrange on floor		42	<1.0
WRLW4	Storage, former IFR, at bullet trap, SE corner on floor	HE HE	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	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)	
	Surface Guide	200	28	
WRLW10	Maintenance bay, on workbench		5,510	23
WRLW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu g/ft^2 =$  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).

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



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.





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# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/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
WRLWS	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	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
WRILW4	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/m²	10 µp/17
Cadmium	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





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

\* 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 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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 (µg/ft²)	Cadmium (µg/ft²)
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 6, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	200	28	
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)  $\mu g/ft^2$  = 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



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.





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# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/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	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
WRJ-W4	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>	Basic 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/m²	10 µg/t <sup>2</sup>
Cadmlum	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





Project 12210 Page 2 of 2

Environmental Laboratory			PR	PROJECT REFERENCE				For Lab Use Only (2021) Conditions on Receipt with Name & Data											
6 S. Clark Street South, sicago, IL 60605-1521	Suite 7	14			Agreement	Agreement A 106644				Project /Report #:				0/11/1					
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Sample Type Codes 2-Water 3-Point 4-Soll ofk 7-Wipe 8 - Other	5-Dust		1-Charcos 3-PVC filt	tl 2-5 or 4	Media Codes" fatched Weight, 0.8um M CE 0.8 um . 37 mm 6. Passive bedge	Nor	1-F	Re	sp	00	n	siv	/e						

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

\* 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  $216 \,\mu g/ft^2$ . 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 Spooner Armory. Ten of the areas surveyed did not meet minimum illumination requirements. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	Lighting	Attached

# Appendix A Metals – Wipe Sampling

### **Surface Area Wipe Samples**

Wipe samples were collected from representative areas of the facility using Environmental Express  $Ghost^{TM}$  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  $\mu$ g/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	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	line	200	28
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

Industrial Hygiene Survey Survey date: October 7, 2014

Sample #	Location	Lead (µg/ft²)	Cadmium (µg/ft <sup>2</sup> )	
	Surface Guide	200	28	
WSPW3	Locker room, former IFR, midrange on floor		216	1.3
WSPW4	Locker room, former IFR, at bullet trap, SE corner on floor	Ş	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 (µg/ft <sup>2</sup> )	Cadmium (µg/ft²)
	Surface Guide	line	200	28
WSPW10	Open office area, on desktop		<10	<1.0
WSPW11	Field blank	N/A	ND	ND

Notes: 1)  $\mu g/ft^2 =$  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



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) 888-0413.





Project 12214R Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

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

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (Hg)	CONCENTRATION (µg/ft <sup>3</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	1

# 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	Basic 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/m²	10 µg/t <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/1 <sup>2</sup>	1.0 µp/x <sup>2</sup>





Project 12214R Page 2 of 2

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

\* 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.

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

### ARNG-CSG-P

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  $\mu$ g/ft<sup>2</sup>. Sample XSPW31, which was collected on the floor in the locker room, midrange in the former IFR, had a lead concentration of 400

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

• 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





Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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  $\mu$ g/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 494  $\mu$ g/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 (µg/ft²)	Cadmium (μg/ft <sup>2</sup> )
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 10, 2014

Sample #	Location	Photo	Lead (µg/ft²)	Cadmium (µg/ft²)
Surface Guideline			200	28
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	E	251	14
XWSPW111	Field blank	N/A	ND	ND

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

BEST AVAILABLE COPY

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



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.





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# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 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>	Bacis 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/m²	10 µg/t <sup>2</sup>
Cadmlum	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





Project 12221 Page 2 of 2

536 S. Clark Street South, Suite 714 Chicago, IL 60605-1821 Tel: (312)-888-9413 Fax: (312)-888-9434 Non-Responsive				Statement of Work No.:	A 1066 S 1844	41		For Lab Project /F Due Date Samples	Report Recei	# ved Chille	1 00 d? YES	1.25	2 Conditions on Rece Verole one)	ept w		Rev.		
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US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

\* 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.

**BEST AVAILABLE COPY** 

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  $\mu$ g/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  $\mu$ g/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  $\mu$ g/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 Superior Armory. Nine of the areas surveyed did not meet minimum illumination requirements. <u>The following actions are required:</u>

• 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





Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/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  $\mu$ g/ft<sup>2</sup>. Sample WSUW5, which was collected on the floor in the southwest corner of the bullet trap in the former indoor firing range, had a lead concentration of 224  $\mu$ g/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  $\mu$ g/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 Superior Armory Superior, Wisconsin October 7, 2014

Sample #	Location	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	200	28	
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	A	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

Industrial Hygiene Survey Survey date: October 7, 2014

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft <sup>2</sup> )
	Surface Guide	200	28	
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	NORTH	<10	<1.0
WSUW11	Field blank	N/A	ND	ND

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

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



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.







Project 12223 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µp/ft <sup>3</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	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/m²	10 µp/1 <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µp/tt <sup>2</sup>





Project 12223 Page 2 of 2

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

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

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

#### ARNG-CSG-P

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  $\mu$ g/ft<sup>2</sup> and a cadmium concentration of 30  $\mu$ g/ft<sup>2</sup>. 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  $\mu$ g/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 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Metals – Wipe Sampling	Attached
В.	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<sup>TM</sup> 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  $\mu$ g/ft<sup>2</sup> and a cadmium concentration of 30  $\mu$ g/ft<sup>2</sup>. 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  $\mu$ g/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).

A-1

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

Sample #	Location	Lead (µg/ft²)	Cadmium (μg/ft <sup>2</sup> )	
	Surface Guide	200	28	
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

Industrial Hygiene Survey Survey date: October 8, 2014

Sample #	Location	Lead (µg/ft²)	Cadmium (µg/ft²)	
	Surface Guide	200	28	
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)  $\mu g/ft^2$  = 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



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.







Project 12216 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (HS)	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 1.9		
WTW6	TM-15-74506	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>	Basic 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/m²	10 µp/17
Cadmlum	OSHA ID-121	0.5 µg/m²	1.0 µp/tt <sup>2</sup>





Project 12216 Page 2 of 2

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

\* 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.

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

#### ARNG-CSG-P

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.

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  $\mu$ g/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.

For any further questions, please contact Non-Responsive

Non-Responsive



Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu g/ft^2$ 

#### **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 #	Sample # Location Photo					
	Surface Guide	line	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)  $\mu g / ft^2 = micrograms per square foot of surface area. 2) ND = none detected. 3) "<" means less than the reporting limit for the analytical method.$ 

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



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.





Project 11415 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

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

# LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/īt <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 pg/ft	Basis for Criteria
ead	250	EPA TSCA 40 CFR 745 and HUD Window Sils

#### 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 up/t <sup>2</sup>	10 µa/2

Non-Responsive





Project 11415 Page 2 of 2

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# Industrial Hygiene Survey Survey Date: October 17, 2013

A-5

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





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<sup>TM</sup> 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 (µg/ft²)	Cadmium (µg/ft <sup>2</sup> )	Chromium (μg/ft <sup>2</sup> )
	Surface Guide	eline	200	28	6,970
WAAW11	Locker room, former IFR, at firing line on floor	K	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	H	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

Industrial Hygiene Survey Survey date: May 20, 2015

Sample #	Location	Photo	Lead (µg/ft <sup>2</sup> )	Cadmium (µg/ft <sup>2</sup> )	Chromium (μg/ft <sup>2</sup> )
	Surface Guide	eline	200	28	6,970
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)  $\mu g/ft^2 =$  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



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.





Project 12853 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	LABORATORY	CONCENTRATION	CONCENTRATION
NUMBER*	NUMBER	(µg)	(µg/11°)
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 (µg)	CONCENTRATION (µg/ff <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 (µg)	CONCENTRATION (µg/ft <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

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

#### Surface Wipe Sampling Criteria

Metal Acceptable Surface Level		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 6	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 2005, http://www.ngbodc.ngb.armv.mil/pubs/420ingpam420_15.pdf
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 Rring Ranges, 3 November 2005, http://www.nobodc.nob.armv.mil/kubs/420/nopam/420_15.odf

#### 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/tt <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µg/ft <sup>2</sup>	1.0 µg/t*
Chromium	OSHA ID-121	5.0 up/ft	10 µ0/15





Project 12853 Page 3 of 3

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

\* Applies to organic and inorganic analysis in cases of an emergency only. \* Applied to immiganic 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. <u>The following actions are required:</u>

• 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



Regional Industrial Hygienist

Appendix	Title	Status
А.	Lead – Wipe Sampling	Attached
В.	Lighting	Attached

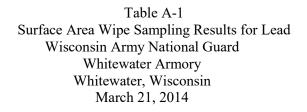
## Appendix A Lead – Wipe Sampling

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

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost<sup>TM</sup> 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.



Sample #	Location	Photo	Lead (µg/ft²)
	200		
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 (µg/ft²)
	Surface Guideli	ine	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)  $\mu g/ft^2$  = 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



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.





Project 11662 Page 1 of 2



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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (#9)	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>	Basis for Criteria
cad	250	EPA TSCA 40 CFR 745 and HUD Window Silis

#### 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 uo/tt <sup>2</sup>	10 up/12





Project 11662 Page 2 of 2

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

### ARNG-CSG-P

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  $\mu$ g/ft<sup>2</sup>. 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).

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





Regional Industrial Hygienist

Appendix	Title	Status
А.	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<sup>TM</sup> 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  $\mu$ g/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 (µg/ft²)		
	Surface Guideline				
WRAW1	Kitchen, on Counter		< <mark>91</mark>		
WRAW2	Individual Locker Area, Former IFR Firing Line Area, on Floor		305		
WRAW3	Individual Locker Area, Former IFR Bullet Trap Area, on Floor	2	<91		
WRAW4	Drill Floor, Center		<91		
WRAW5	Vault, on Floor		<91		
WRAW6	Field Blank	N/A	ND		

Notes: 1)  $\mu$ g / ft<sup>2</sup> = 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



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.





Project 11413 Page 1 of 2



538 8. CLARK STREET CHICAGO, IL 60606 PHONE: (\$12) 888-0418 FAX: (\$12) 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 pg/ft	Basis for Criteria
ead	250	EPA TSCA 40 CFR 745 and HUD Window Sils

#### Metals in Wipe Limits (based on one ft' sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 wo/t	10 9915





Project 11413 Page 2 of 2

Posted to NGB FOIA Reading Room

May, 2018

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# 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

### Table of Contents

- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. 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. <u>Executive Summary</u>

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  $ug/ft^2$ . 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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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	261	<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  $ug/ft^2$ . 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 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	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
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  $Ghost^{TM}$  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  $Ghost^{TM}$  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



538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:



Reference Data: Lea Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Date Analyzed: Date Issued:

Lead, Cadmium and Chromium NGB: Berlin, WI (Armory) Ghost Wipe(s)8 e: OSHA ID-121 Project 10987 TM-13-60136 through TM-13-60145 03/21/13 03/22/13 - 03/25/13 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.





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

### LEAD on WIPE RESULTS

SAMPLE NUMBER*			CONCENTRATION (µg/ft <sup>2</sup> )				
WIBEW1	TM-13-60136	(μg) <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 <91 <91				
WIBEW6	TM-13-60141	<10					
WIBEW7	TM-13-60142	<10					
WIBEW8	TM-13-60143	15	140				
WIBEW9	TM-13-60144	<10	<91				
WIBEW10	TM-13-60145	<10	None Detected				

### CADMIUM on WIPE RESULTS

SAMPLE LABORATORY NUMBER* 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 <9.1 10			
WIBEW6	TM-13-60141	<1.0				
WIBEW7	TM-13-60142	1.1				
WIBEW8	TM-13-60143	<1.0	<9.1 <9.1			
WIBEW9	TM-13-60144	<1.0				
WIBEW10	TM-13-60145	<1.0	None Detected			

### CHROMIUM on WIPE RESULTS

SAMPLE LABORATORY NUMBER* NUMBER		CONCENTRATION (µg)	CONCENTRATIO (µg/ft²)				
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 <91				
WIBEW7	TM-13-60142	<10					
WIBEW8	TM-13-60143	<10	<91				
WIBEW9	TM-13-60144	<10	<91				
WIBEW10	TM-13-60145	<10	None Detected				



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

### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level up/ft <sup>3</sup>	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 Sils						

#### 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/π <sup>2</sup>
Cadmium	OSHA ID-121	0.5 µgrft <sup>2</sup>	1.0 µp/ft <sup>3</sup>
Chromium	OSHA ID-121	5.0 ug/ft <sup>2</sup>	10 40/17





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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		Exposure Conditions			
of Exposure		<ct< td=""><td>Occasionally &gt;CT</td><td>&gt;CT</td><td>&gt;STD</td></ct<>	Occasionally >CT	>CT	>STD
AER	NO	0	3	5	7
Possible	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	Ш
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	А	В	С	D
I	1	1	2	3
п	1	2	3	4
ш	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

### Table of Contents

- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. 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. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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. <u>Findings, Discussion, and Recommendations</u>

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	1,109
Former IFR, at Bullet Trap	WIHAW5	105
Field Blank	WIHAW6	ND

Note:

ug/ft<sup>2</sup>= micrograms per square foot of surface area.
 Bold indicates that concentration was "significant."
 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)

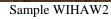
4. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

**Figure 2 – Wipe Sample Locations (below)** 



Sample WIHAW1







Sample 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	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
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

#### Ion-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<sup>TM</sup> 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<sup>TM</sup> 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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention:

on-Responsive

Submitted By:

Reference Data: Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Date Analyzed: Date Issued: Lead NGB: Hartford, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 10997 TM-13-60219 through TM-13-60224 03/25/13 03/26/13 - 03/27/13 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.





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# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### 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
WIHAW6"	TM-13-60224	<10	

#### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>2</sup>	Basis for Criteria
ead	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 µp/π <sup>2</sup>	10 µo/n <sup>2</sup>





Project 10997 Page 2 of 2

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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 F	Route	Exposure Conditions						
of Expos	ure	<ct< td=""><td>Occasionally &gt;CT</td><td>&gt;CT</td><td>&gt;STD</td></ct<>	Occasionally >CT	>CT	>STD			
AER	NO	0	3	5	7			
Possible	YES	1-2	4	6	8			

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	Ш
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC							
	А	В	С	D				
I	1	1	2	3				
п	1	2	3	4				
ш	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
- II. Introduction
- III. Site Description
- IV. Scope of Work
- 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. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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.



<u>Figure 1 – Kenosha Armory</u>

## IV. <u>Scope of Work</u>

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

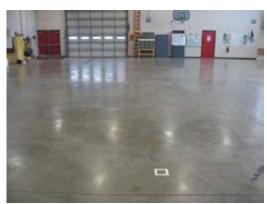
Surface Area Wipe Samp Wisconsin Army N Kenosha A Kenosha, W March 18	Jing Results for Lead National Guard Armory Visconsin
Sample Number and Location	Lead (ug/ft <sup>2</sup> )
WKARW1, Drill Floor on Floor	<91
WKARW2, North Vault on Gun Rack	<91
WKARW3, Kitchen on Food Prep Counter	<91
WKARW4, Former IFR in Corner Near Firing Area	<91
WKARW5, Former IFR in Corner Near Bullet Trap Area	1,673
WKARW6, Field Blank	ND

Notes: 1)  $ug/ft^2 = micrograms$  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



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 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<sup>TM</sup> 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<sup>TM</sup> 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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:



Reference Data: Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos .: Date Received: Data Analyzed: Date Issued:

NGB: Kenosha, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 9940 TM-11-49136 through TM-11-49141 03/23/11 03/24/11 - 03/25/11 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) 888-0413.





Project 9940 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

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

#### LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft <sup>2</sup> )		
WKARW1	TM-11-49136	<10	<91		
WKARW2	TM-11-49137	<10	<91 <91		
WKARW3	TM-11-49138	<10			
WKARW4	TM-11-49139	TM-11-49139 <10			
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 Limi
Lead	OSHAID-121	5.0 up 🐨	10 uo/6 <sup>2</sup>





Project 9940 Page 2 of 2

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Posted to NGB FOIA Reading Room May, 2018

Industrial Hygiene Survey Survey Date: March 18, 2011 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		Exposure Conditions			
of Exposure		<ct< td=""><td>Occasionally &gt;CT</td><td>&gt;CT</td><td>&gt;STD</td></ct<>	Occasionally >CT	>CT	>STD
AER	NO	0	3	5	7
Possible	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	П
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	МРС			
	А	В	С	D
I	1	1	2	3
п	1	2	3	4
ш	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
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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. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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. <u>Findings, Discussion, and Recommendations</u>

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  $200 \text{ ug/ft}^2$  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	<91
IFR – on floor	
WMARW5 32MP Supply Room - on	<91
Desktop	
WMARW6, Field Blank	ND

ug/ft<sup>2</sup>= micrograms per square foot of surface area.
 Bold indicates that concentration was "significant."
 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)



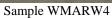
Sample WMARW1

Sample WMARW2

Milwaukee Armory Milwaukee, Wisconsin



Sample WMARW3





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			
P 1 01	(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
W omen'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 152 – Office	38
Room 154 – Office	48
Room 154 – Office	48 32
Room 156 – Office	21
Recruiting Office	10
Supply Closet (Old IFR)	23
Office (Old IFR)	<u>29</u> 37
Classroom (Old IFR)	
Maintenance Chase (Old IFR)	81
Room 161 – Vehicle Entry	25

## Industrial Hygiene Survey Survey Date: March 17, 2011

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<sup>TM</sup> 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<sup>TM</sup> 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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention:



Submitted By:

Reference Data: Lead Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos .: Date Received: Data Analyzed: Date Issued:

NGB: Milwaukee, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 9941 TM-11-49142 through TM-11-49147 03/23/11 03/24/11 - 03/25/11 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) 888-0413.





Project 9941 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-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 µ0/ft <sup>2</sup>	250 µ0/11 <sup>2</sup>	400 µ0/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 Limi
Lead	OSHAID-121	5.0 up 😚	10 80.00

Non-Responsive



Project 9941 Page 2 of 2

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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 F	Route	Exposure Conditions				
of Expos	ure	<ct occasionally="">CT &gt;CT &gt;STD</ct>			>STD	
AER	NO	0	3	5	7	
Possible	YES	1-2	4	6	8	

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	п
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	А	В	С	D
I	1	1	2	3
п	1	2	3	4
ш	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

# Table of Contents

- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. 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. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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. <u>Findings, Discussion, and Recommendations</u>

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	284
Weight Room, Former IFR, at Firing Line	WIOCW4	<91
Weight Room, Former IFR, Impact Area	WIOCW5	<91
Field Blank	WIOCW6	ND

Note:

1)  $ug/t^2 = micrograms per square foot of surface area.$  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	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
Instrument Inspection/Repair	70
1 1	

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**



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<sup>TM</sup> 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<sup>TM</sup> 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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:



Reference Data: Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Date Analyzed: Date Issued: Lead NGB: Oconomowoc, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 10998 TM-13-60225 through TM-13-60230 03/25/13 03/26/13 - 03/27/13 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.





Project 10998 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### 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	

#### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>3</sup>	Basis for Criteria
ead	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	OSHAID-121	5.0 up/t <sup>2</sup>	10 µp/tt <sup>2</sup>





Project 10998 Page 2 of 2

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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 F	Route		Exposure Conditions				
of Expos	of Exposure		Occasionally >CT	>CT	>STD		
AER	NO	0	3	5	7		
Possible	YES	1-2	4	6	8		

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	п
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC					
	А	В	С	D		
I	1	1	2	3		
п	1	2	3	4		
ш	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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- I. Executive Summary
- II. Findings and Recommendations Summary Table
- III. Introduction
- IV. Site Description
- V. Scope of Work
- VI. 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. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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.

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Figure 1 – Oshkosh Armory

# V. <u>Findings, Discussion, and Recommendations</u>

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  $31,818 \text{ ug/ft}^2$ . The closed indoor firing range should be cleaned up as specified by the procedures

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Industrial Hygiene Survey Survey Date: March 14, 2013

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  $200 \text{ ug/ft}^2$ . 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	31,818
Classroom, on Table Top	WIOSW5	<91
Field Blank	WIOSW6	ND

Note:

1)  $ug/ft^2 = micrograms$  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	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
Instrument Inspection/Repair	70
instrument inspection respin	

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

#### Ion-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<sup>TM</sup> 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<sup>TM</sup> 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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:

Reference Data:



Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Data Analyzed: Date Issued:

Lead NGB: Oshkosh, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 10980 TM-13-60081 through TM-13-60086 03/18/13 03/20/13 - 03/21/13 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.





Project 10980 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### 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 pg/ft	Basis for Criteria
ead	250	EPA TSCA 40 CFR 745 and HUD Window Sils

# 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 uo 13 <sup>3</sup>	10 µo/t <sup>2</sup>





Project 10980 Page 2 of 2

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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 F	Route	Exposure Conditions					
of Expos	ure	<ct occasionally="">CT &gt;CT &gt;</ct>					
AER	NO	0	3	5	7		
Possible	YES	1-2	4	6	8		

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	п
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC			
	А	В	С	D
I	1	1	2	3
п	1	2	3	4
ш	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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- B. Methodology and Assessment Criteria.
- C. Laboratory Result Reports and Chain of Custody Sheets.
- D. Occupational Health Risk Assessment Codes (RACs)

#### I. <u>Executive Summary</u>

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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.



# <u> Figure 1 – Ripon Armory</u>

#### V. <u>Findings, Discussion, and Recommendations</u>

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)  $ug/ft^2 = micrograms per square foot of surface area.$  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



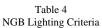
Sample WIRIW5

### **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



Location	Minimum Foot Candles Required
Inactive Areas	5
Billet	
Break Room/Dining	
Flammable Storage/POL/Waste Handling	
Latrine/Shower/Locker	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
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<sup>TM</sup> 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<sup>TM</sup> 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

538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:

Reference Data:



Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Data Analyzed: Date Issued: NGB: Ripon, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 10986 TM-13-60130 through TM-13-80135 03/21/13 03/22/13 - 03/25/13 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.





Project 10986 Page 1 of 2



# FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60806 PHONE: (312) 888-0413 FAX: (312) 888-0434

#### 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
WIR/W3	TM-13-60132	13	114
WIRIW4	TM-13-60133	<10	<91
WIRIW5	TM-13-60134	<10	<91
WIR/W6**	TM-13-60135	<10	

#### Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft <sup>3</sup>	Basis for Criteria
ead	250	EPA TSCA 40 CFR 745 and HUD Window Sits

# Metals in Wipe Limits

(based on one ft<sup>2</sup> sampled area)

An	alyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
L	ead	OSHA ID-121	5.0 µp/17	10 µg/R <sup>2</sup>





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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 F	Route		Exposure Conditions						
of Expos	ure	<ct< td=""><td>&gt;STD</td></ct<>	>STD						
AER	NO	0	3	5	7				
Possible	YES	1-2	4	6	8				

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	п
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC						
	А	В	С	D			
I	1	1	2	3			
п	1	2	3	4			
ш	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

#### Table of Contents

- 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. <u>Executive Summary</u>

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  $ug/ft^2$ . A sample collected on the top of a locker in the locker room, (in the closed IFR), had a lead concentration of 328  $ug/ft^2$ .

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. <u>Introduction</u>

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. <u>Site Description</u>

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. <u>Scope of Work</u>

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.



# <u>Figure 1 – Waupun Armory</u>

#### 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  $328 \text{ ug/ft}^2$ .

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	568
Locker Room, Former IFR, on Top of Locker	WIWAW7	328
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)  $ug/ft^2 = micrograms$  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:

- 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

#### BEST AVAILABLE COPY

Waupun Armory Waupun, Wisconsin



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	30
Mechanical/Electrical Room	
Storage/Tool/Supply	
Vault	
Battery Room	
Fitness Room	
IFR/Small Arms Test (at firing line)	
Kitchen/Assembly Hall/Auditorium	50
Mail Room	
Maintenance Workbay/Shop	
Paint Booth/Blast Booth, Paint Mix Room	
Office/Classroom/Library	
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

#### Ion-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  $Ghost^{TM}$  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  $Ghost^{TM}$  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

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

#### ANALYTICAL REPORT

Submitted To:

USPHS / Federal Occupational Health Denver Federal Center Denver, CO 80225

Attention: Submitted By:



Reference Data: Sampling Site: Sample Media: Method Reference: Project ID: DFOH Lab Nos.: Date Received: Data Analyzed: Data Issued: Lead NGB: Waupun, WI (Armory) Ghost Wipe(s)® OSHA ID-121 Project 10981 TM-13-60087 through TM-13-80096 03/18/13 03/20/13 - 03/21/13 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.





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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> )
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

Metai	Acceptable Surface Level	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sils

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHAID-121	5.0 µp/t <sup>2</sup>	10 µg/t <sup>2</sup>





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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 F	Route	Exposure Conditions			
of Expos	ure	<ct occasionally="">CT &gt;CT &gt;STD</ct>			>STD
AER	NO	0	3	5	7
Possible	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5 > < = Less than 6 > < = 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	п
5-8	ш
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*	МРС
14-16	А
10-13	В
5-9	С
<5	D

\* Sum of A and B above

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

HHSC	MPC				
	А	В	С	D	
I	1	1	2	3	
п	1	2	3	4	
ш	2	3	4	5	
IV	3	4	5	5	