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

ARNG-CSG-P March 30, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at General Jones Armory, Chicago, Illinois

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 December 20, 2013 at the Illinois Army National Guard General Jones Armory, 5200 S. Cottage Grove, Chicago, Illinois. 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 General Jones Armory was built in 1929. The facility has 270,690 square feet of floor space. The armory is the base of operations for HHC 178th and HHQ 122nd FA. 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 General Jones Armory had an indoor firing range (IFR) that was closed and is no longer in use. Weapons may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. The weapons vaults were not accessible on the day of the survey.

The armory is available for rental for community activities that include being used as a location to shoot movies and an annual 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 toxic metals. For purposes of this report, any results that exceed the guidelines adopted by the NGB Mid-West Regional IH Office are considered significant. Four of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in front of the weapons vault (room N119), had a lead concentration of 385 µg/ft^2. A sample collected at the firing line in the former IFR had a lead concentration of 923 µg/ft^2. A sample collected on the floor midrange in the former IFR had a lead concentration of 540 µg/ft^2. A

sample collected on the floor at the bullet trap in the former IFR had a lead concentration of 1,506 µg/ft^2. 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^2 (RAC 2).**

- **Clean the horizontal surfaces of the break room and maintenance areas using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**

- **Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).**

- **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 General Jones Armory. Forty 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).**

During the walk through, water damage, mold and peeling paint were observed in several areas. Water damaged ceiling tiles and mold growth were observed in the kitchen, Room W113, and the trophy case area at Room N216A . The locker room, S210 had extensive water damage, mold growth, and peeling paint on the ceiling.

Peeling paint, water damage and mold growth were also observed in the medical orderly room W101, the medical storage room W201, the scout platform room W104, the S3 office and storage area W105, the mortar's office and storage area W106, supply storage W107, library N202, HHB training room S222, weight room S202,cardio room S205, locker room S208, conference room S201, and the janitor's closet. Due to the age of the building, the peeling paint is likely to be lead containing. The following actions are required:

- **Repair roofs and walls to prevent additional water leakage (RAC 2).**

- **Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).**

- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

- **Perform a lead paint inspection. If peeling paint contains lead, a licensed lead abatement contractor should be engaged to perform lead abatement of the peeling paint (RAC 2).**

For any further questions, please contact Non-Responsive [redacted]

Non-Responsive

Non-Responsive

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached
C.	Mold – Peeling Paint	Attached

Appendix A
Toxic Metals – Wipe Sampling

Surface Area Wipe Samples

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

The General Jones Armory had an indoor firing range (IFR) that was closed and is no longer in use. The weapons vaults were not accessible on the day of the survey.

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. Four of the surface wipe sample results exceeded the guideline for lead.

Sample ILGJW24, which was collected on the floor in front of the weapons vault (room N119) had a lead concentration of 385 $\mu g/ft^2$. Sample ILGJW26, which was collected on the floor at the firing line in the former IFR, had a lead concentration of 923 $\mu g/ft^2$. Sample ILGJW27, which was collected on the floor midrange in the former IFR, had a lead concentration of 540 $\mu g/ft^2$. Sample ILGJW28, which was collected on the floor at the bullet trap in the former IFR, had a lead concentration of 1,506 $\mu g/ft^2$.

Table A-1
Surface Area Wipe Sampling Results for Toxic Metals
Illinois Army National Guard
General Jones Armory
Chicago, Illinois
December 20, 2013

Sample #	Location	Photo	Lead (µg/ft^2)	Cadmium (µg/ft^2)	Chromium (µg/ft^2)
Surface Guideline			**200**	**28**	**6,970**
ILGJW21	Room W106, Mortar's Office and Storage, on Floor		166	11	<91
ILGJW22	Room W113, Kitchen, on Table		<91	<9.1	<91
ILGJW23	Drill Floor, Center, on Floor		<91	<9.1	<91
ILGJW24	In Front of Room N119, Vault, on Floor		**385**	<9.1	<91
ILGJW25	Basketball Court, Center, on Floor		<91	<9.1	<91
ILGJW26	Firing Line, Former IFR, on Floor		**923**	<9.1	<91

Sample #	Location	Photo	Lead (µg/ft^2)	Cadmium (µg/ft^2)	Chromium (µg/ft^2)
Surface Guideline			**200**	**28**	**6,970**
ILGJW27	Midrange, Former IFR, on Floor		**540**	<9.1	<91
ILGJW28	At Bullet Trap, Former IFR, on Floor		**1,506**	<9.1	148
ILGJW29	At Bullet Trap, Former IFR, on Bullet Trap		<91	<9.1	<91
ILGJW30	Field Blank	N/A	ND	ND	ND

Notes: 1) µg/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^2 (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. Clean the horizontal surfaces of the break room and maintenance areas using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

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).

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium and Chromium
Sampling Site: NGB: Chicago, IL (General Jones Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11541
DFOH Lab Nos.: TM-14-65716 through TM-14-65725
Date Received: 12/27/13
Data Analyzed: 12/30/13 – 12/31/13
Date Issued: 01/02/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGJW21	TM-14-65716	18	166
ILGJW22	TM-14-65717	<10	<91
ILGJW23	TM-14-65718	<10	<91
ILGJW24	TM-14-65719	42	385
ILGJW25	TM-14-65720	<10	<91
ILGJW26	TM-14-65721	102	923
ILGJW27	TM-14-65722	59	540
ILGJW28	TM-14-65723	166	1506
ILGJW29	TM-14-65724	<10	<91
ILGJW30**	TM-14-65725	<10	

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGJW21	TM-14-65716	1.3	11
ILGJW22	TM-14-65717	<1.0	<9.1
ILGJW23	TM-14-65718	<1.0	<9.1
ILGJW24	TM-14-65719	<1.0	<9.1
ILGJW25	TM-14-65720	<1.0	<9.1
ILGJW26	TM-14-65721	<1.0	<9.1
ILGJW27	TM-14-65722	<1.0	<9.1
ILGJW28	TM-14-65723	<1.0	<9.1
ILGJW29	TM-14-65724	<1.0	<9.1
ILGJW30**	TM-14-65725	<1.0	

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGJW21	TM-14-65716	<10	<91
ILGJW22	TM-14-65717	<10	<91
ILGJW23	TM-14-65718	<10	<91
ILGJW24	TM-14-65719	<10	<91
ILGJW25	TM-14-65720	<10	<91
ILGJW26	TM-14-65721	<10	<91
ILGJW27	TM-14-65722	<10	<91
ILGJW28	TM-14-65723	16	148
ILGJW29	TM-14-65724	<10	<91
ILGJW30**	TM-14-65725	<10	

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11541
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FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 888-0413 FAX: (312) 888-0434

Surface Wipe Sampling Criteria

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

Metals in Wipe Limits
(based on one ft^2 sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 $\mu g/ft^2$	10 $\mu g/ft^2$
Cadmium	OSHA ID-121	0.5 $\mu g/ft^2$	1.0 $\mu g/ft^2$
Chromium	OSHA ID-121	5.0 $\mu g/ft^2$	10 $\mu g/ft^2$

Non-Responsive

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Project 11541
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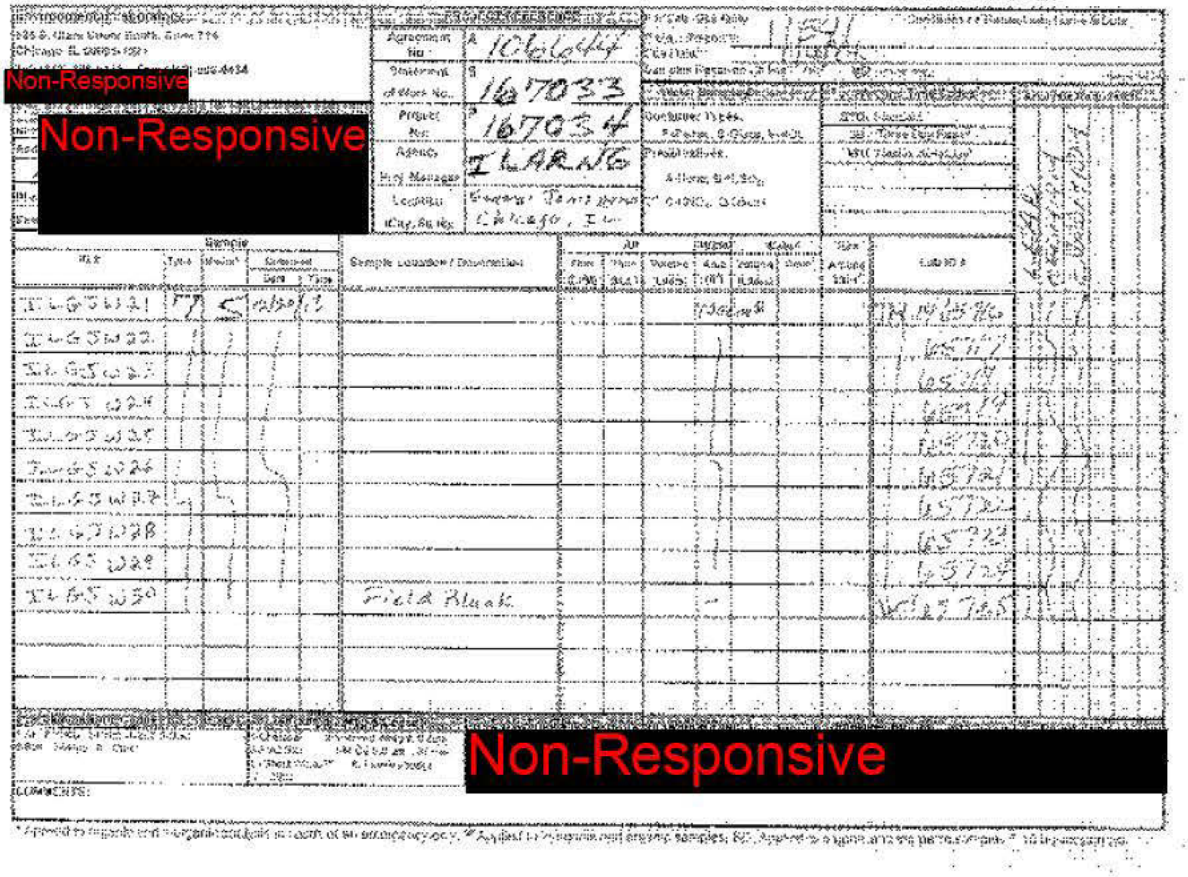
US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Forty spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
General Jones Armory
Chicago, Illinois
December 20, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room W101, Medical Orderly	5-9	50	No
Room W102, Office	22-24	50	No
Room W201, Medical Storage	0-2	30	No
Room W104, Scout Platoon	3-16	50	No
Room W105, S3 Office and Storage	3-4	50	No
Room W106, Mortar's Office and Storage	5-8	50	No
Room W107, Supply Storage	0-1	30	No
Room W108, Fire's Team Room	38-43	50	No
Room W116, Mess Hall, South	6-17	30	No
Room W113, Kitchen	7-27	50	No
Mess Hall, North	4-16	30	No
Drill Floor	87-98	50	Yes
Room N118, Men's Latrine	2-18	30	No
Room N00, Classroom	15-21	50	No
Room N107, Building Engineer's Office	75-92	50	Yes
Room N202, Library	27-32	50	No
Room N228, Copy Room	45-63	50	Partially
Room N206, Battalion Supply Office	57-79	50	Yes
Room N210, Battalion Ops Office	42-52	50	Partially
Room N211A, OIC Office	73-85	50	Yes
Room N211, Battalion CSM Office	31-60	50	Partially
Room N212, Battalion Commander Office	15-19	50	No
Room N212A, Break Room	16-24	30	No
Trophy Case Area	23-47	30	Partially
Room N217, Classroom	11-18	50	No
Room N219, S1 Office	72-75	50	Yes

Basketball Court	10-16	50	No
Room 240B, Office	9-20	50	No
Room 240A, Office	34-39	50	No
Room 240, Orderly Room	33-40	50	No
Room S225, Office	48-63	50	Partially
Room S222, HHB Training Room 2nd Battalion, 122nd Field Artillery	8-34	50	No
Room S207, Men's Latrine	9-17	30	No
Men's Shower	3-11	30	No
Room S202, Weight Room	9-12	50	No
Room S205, Cardio Room	32-34	50	No
Room S208, Locker Room	7-18	30	No
Room S215, Former Medical Supply	6-8	30	No
Room S210, Locker Room	2-12	30	No
Room S213, Storage	5-6	30	No
Room S247, Women's Latrine	6-12	30	No
Room S243, Storage	39-42	30	Yes
Room S201, Conference Room	7-11	50	No
Janitor's Closet	10-11	30	No
Break Room, 4th Floor	6-53	30	Partially
Room S302, Latrine	12-26	30	No

Recommendations:

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

Appendix C
Water Damage - Mold – Peeling Paint

During the walk through, water damage, mold and peeling paint were observed in several areas. Water damaged ceiling tiles and mold growth were observed in the kitchen, Room W113, (Figure C-1) and the trophy case area at Room N216A (Figure C-2). The locker room, S210 had extensive water damage, mold growth, and peeling paint on the ceiling (Figures C-3 to C-5).

Peeling paint, water damage and mold growth were also observed in the medical orderly room W101, the medical storage room W201, the scout platform room W104, the S3 office and storage area W105, the mortar's office and storage area W106, supply storage W107, library N202, HHB training room S222, weight room S202,cardio room S205, locker room S208, conference room S201, and the janitor's closet. Due to the age of the building, the peeling paint is likely to be lead containing.

Figure C-1 – Water Damage and Mold on Ceiling Tiles in Kitchen W113

Figure C-2 – Water Damage and Mold on Ceiling Tiles in Trophy Case Area at Room N216A

Figure C-3 – Peeling Paint and Mold in Locker Room S210

Figure C-4 – Peeling Paint in Locker Room S210

Figure C-5 – Mold in Locker Room S210

Recommendations:

1. Repair roofs and walls to prevent additional water leakage (RAC 2).

2. Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).

3. Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).

4. Perform a lead paint inspection. If peeling paint contains lead, a licensed lead abatement contractor should be engaged to perform lead abatement of the peeling paint (RAC 2).

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

ARNG-CSG-P October 14, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Kedzie Armory, Chicago, Illinois

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 7 & September 9, 2014 at the Illinois Army National Guard Kedzie Armory, 1551 North Kedzie Avenue, Chicago, Illinois. 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 Kedzie Armory was built in 1940. The facility has 204,256 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and five weapons vaults. The armory is the base of operations for the 244th Army Liaison Team, the HHC of the 108th Sustainment Brigade, and recruiters. 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 days of the survey. The armory is available for rental for assemblies for homeless veterans. The veterans are provided with showers, haircuts, and medical exams.

Site personnel reported that the Kedzie Armory had an indoor firing range (IFR) that was closed between 12 and 14 years ago. 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. On August 7, the initial day of the survey, personnel at the site could not provide access to the closed firing range and four of the weapons vaults. A return visit was scheduled on September 9 to collect wipe samples for lead in the closed firing range and weapons vaults.

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. Nine of the surface wipe sample results exceeded the guideline for lead. Sample ILKEW11, which was collected on the floor in vault 1, had a lead concentration of 609 μg/ft^2. Sample ILKEW13, which was collected on the floor outside the entrance to vault 2, had a lead concentration of 347 μg/ft^2. Sample ILKEW22, which was collected on the floor in the northeast corner of the caged storage area, at the bullet trap in the former IFR, had a lead concentration of 5,620 μg/ft^2. Sample ILKEW23, which was collected on the floor in the southeast corner of the caged storage area, at the bullet trap in the former IFR, had a lead concentration of 4,645 μg/ft^2. Sample ILKEW24, which was collected on the floor in the caged storage area, at the center of the range along the wall in the former IFR, had a lead concentration of 9,238 μg/ft^2. Sample ILKEW25, which was collected on the floor in the caged storage area, at the firing line in the former IFR, had a lead concentration of 4,283 μg/ft^2. Sample ILKEW26, which was collected on the floor in the northeast corner of vault 2, had a lead concentration of 835 μg/ft^2. Sample ILKEW28, which was collected on a shelf in the northeast corner of vault 3/the radiac room, had a lead concentration of 244 μg/ft^2. Sample ILKEW29, which was collected on the floor in the northeast corner of vault 4, had a lead concentration of 2,788 μg/ft^2. 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^2. (RAC 2)**

- **Materials stored in the closed indoor firing range should be cleaned and decontaminated before being used or distributed by site personnel (RAC 2).**

- **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 Kedzie Armory. Twelve of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

During the walk through, water damage, mold growth and peeling paint were observed in several areas. Water damaged ceilings and walls, peeling paint and mold growth were observed in room 225, an office suite and room 227, an office suite. The following actions are required:

- **Repair roofs and walls to prevent additional water leakage (RAC 2).**

- **Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).**

- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached
C.	Water Damage and Mold	Attached

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

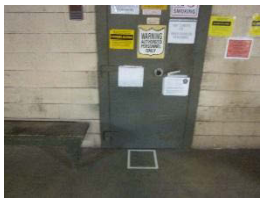
Site personnel reported that the Kedzie Armory had an indoor firing range (IFR) that was closed between 12 and 14 years ago. On August 7, the initial day of the survey, personnel at the site could not provide access to the closed firing range and four of the weapons vaults. A return visit was scheduled on September 9 to collect wipe samples for lead in the closed firing range and weapons vaults.

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. Nine of the surface wipe sample results exceeded the guideline for lead. Sample ILKEW11, which was collected on the floor in vault 1, had a lead concentration of 609 μg/ft^2. Sample ILKEW13, which was collected on the floor outside the entrance to vault 2, had a lead concentration of 347 μg/ft^2. Sample ILKEW22, which was collected on the floor in the northeast corner of the caged storage area, at the bullet trap in the former IFR, had a lead concentration of 5,620 μg/ft^2. Sample ILKEW23, which was collected on the floor in the southeast corner of the caged storage area, at the bullet trap in the former IFR, had a lead concentration of 4,645 μg/ft^2. Sample ILKEW24, which was collected on the floor in the caged storage area, at the center of the range along the wall in the former IFR, had a lead concentration of 9,238 μg/ft^2. Sample ILKEW25, which was collected on the floor in the caged storage area, at the firing line in the former IFR, had a lead concentration of 4,283 μg/ft^2. Sample ILKEW26, which was collected on the floor in the northeast corner of vault 2, had a lead concentration of 835 μg/ft^2. Sample ILKEW28, which was collected on a shelf in the northeast corner of vault 3/the radiac room, had a lead concentration of 244 μg/ft^2. Sample ILKEW29, which was collected on the floor in the northeast corner of vault 4, had a lead concentration of 2,788 μg/ft^2.

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^2. Materials stored in the closed indoor firing range should be cleaned and decontaminated before being used or distributed by site personnel.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Kedzie Armory
Chicago, Illinois
August 7 and September 9, 2014

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILKEW11	Vault 1, on floor in corner, on floor		**609**
ILKEW12	Vault 1, on table		64
ILKEW13	Entrance to vault 2, on floor		**347**
ILKEW14	Room 225, Office, on desktop		<10
ILKEW15	Room 231, Computer lab, on desktop		<10
ILKEW16	Room 254, S4 office, on conference table		<10

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILKEW17	Teleconference room, on conference table		<10
ILKEW18	Room 317, Medic office, on desktop		<10
ILKEW19	Kitchen, on prep table		32
ILKEW20	Dining hall, in corner, on floor		<10
ILKEW21	Field blank	N/A	ND
ILKEW22	Caged storage, former IFR, at bullet trap, northeast corner, on floor		**5,620**
ILKEW23	Caged storage, former IFR, at bullet trap, southeast corner, on floor		**4,645**
ILKEW24	Caged storage, former IFR, center of range along wall, on floor		**9,238**

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILKEW25	Caged storage, former IFR, at firing line, by entrance		**4,283**
ILKEW26	Vault 2, northeast corner, on floor		**835**
ILKEW27	Outside vault 2, on the table where weapons are cleaned		88
ILKEW28	Vault 3, Radiac room/storage, on shelf in northeast corner		**244**
ILKEW29	Vault 4, northeast corner, on floor		**2,788**
ILKEW30	Vault 5, Radio storage, on northwest corner shelf		42
ILKEW31	Field blank	N/A	ND

Notes: 1) µg/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^2. (RAC 2)

2. Materials stored in the closed indoor firing range should be cleaned and decontaminated before being used or distributed by site personnel (RAC 2).

3. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

4. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).

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

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Chicago, IL (Kedzie Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11967
DFOH Lab Nos.: TM-14-70488 through TM-14-70498
Date Received: 08/11/14
Data Analyzed: 08/12/14 – 08/13/14
Date Issued: 08/13/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

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

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKEW11	TM-14-70488	609	609
ILKEW12	TM-14-70489	64	64
ILKEW13	TM-14-70490	347	347
ILKEW14	TM-14-70491	<10	<10
ILKEW15	TM-14-70492	<10	<10
ILKEW16	TM-14-70493	<10	<10
ILKEW17	TM-14-70494	<10	<10
ILKEW18	TM-14-70495	<10	<10
ILKEW19	TM-14-70496	32	32
ILKEW20	TM-14-70497	<10	<10
ILKEW21**	TM-14-70498	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Lead – Furnace AA	OSHA ID-121	0.25 µg/ft²	0.50 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11967
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

Contact Information
Name: Non-Responsive
Address:
Phone/F
Email:

PROJECT REFERENCE
Agreement No.: A 106644
Statement of Work No.: S 180648
Project No: P 189649
Agency Proj. Manager: ILARNG
Location (City, State): Kedzie Armory Chicago, IL

For Lab Use Only
Project /Report #: 11967
Due Date:
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date
Rev. 07/2010

Water Sample Codes[2]
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes[4]
STD- Standard
3D- Three Day Rush[@]
WH Weekend/Holiday*

Analysis Requested: LEAD

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft^2)	Water Volume (Liters)	Water Code[3]	Turn Around Time[4]	Lab ID #
ILKEW11	7	5	8/7	/14					1				TM-14-70488
12	"	"	"						"				70489
13	"	"	"						"				70490
14	"	"	"						"				70491
15	"	"	"						"				70492
16	"	"	"						"				70493
17	"	"	"						"				70494
18	"	"	"						"				70495
19	"	"	"						"				70496
20	"	"	"						↓				70497
↓ 21	↓	↓	↓		Field blank				–				↓ 70498

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8 - Other

Sample Media Codes[2]
1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-MCE 0.8 um , 37 mm 5 -Ghost Wipes™ 6. Passive badge 7. Other

Relinquished By / Date & Time / Received By / Date & Time

Non-Responsive

COMMENTS: 1 Square foot samples

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

FOH ENVIRONMENTAL LABORATORY

636 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Chicago, IL (Kedzie Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 12035
DFOH Lab Nos.: TM-14-72008 through TM-14-72017
Date Received: 09/12/14
Data Analyzed: 09/15/14 – 09/16/14
Date Issued: 09/17/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

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

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKEW22	TM-14-72008	5620	5620
ILKEW23	TM-14-72009	4645	4645
ILKEW24	TM-14-72010	9238	9238
ILKEW25	TM-14-72011	4283	4283
ILKEW26	TM-14-72012	835	835
ILKEW27	TM-14-72013	88	88
ILKEW28	TM-14-72014	244	244
ILKEW29	TM-14-72015	2788	2788
ILKEW30	TM-14-72016	42	42
ILKEW31**	TM-14-72017	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12035
Page 2 of 2

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

Environmental Laboratory
538 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

Contact Information
Name
Address
Phone
Email

Non-Responsive

PROJECT REFERENCE

Agreement No.:	A 106644
Statement of Work No.:	S 180648
Project No:	P 189649
Agency Proj. Manager	ILARNG
Location (City, State):	Chicago Kedzie Armory Chicago, IL

For Lab Use Only
Project /Report #: 12035
Due Date: 9/16/14
Samples Received Chilled? YES NO (circle one)

Conditions on Receipt with Name & Date

Rev. 07/2013

Water Sample Codes*
Container Types:
P-Plastic, G-Glass, V-VOC
Preservatives:
A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes*
STD- Standard
3D- Three Day Rush@
WH Weekend/Holiday*

Analysis Requested
Lead

Sample ID #	Type*	Media*	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft^2)	Water Volume (Liters)	Water Code*	Turn Around Time*	Lab ID #
ILKEW22	7	5	9/9/14						1				TM-14-72008
23													72009
24													72010
25													72011
26													72012
27													72013
28													72014
29													72015
30													72016
31					Field blank				-				72017

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

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

Relinquished By | Date & Time | Received By | Date & Time

Non-Responsive

COMMENTS: 1 square foot samples

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

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Twelve spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Kedzie Armory
Chicago, Illinois
August 7 and September 9, 2014

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Vault 1	78-94	30	Yes
Room 200A, Office, 108th Sustainment Brigade	89-92	50	Yes
Parking garage	11-64	30	Partially
Parking garage adjacent office	6-53	50	Partially
Room 225, Office	35-59	50	Partially
Room 225 suite, adjacent office	81-93	50	Yes
Room 227, open office	55-81	50	Yes
Room 231, Computer lab	32-91	50	Partially
Briefing/classroom area, former gym	40-59	50	Partially
Room 242, Men's latrine	30-55	30	Yes
Room 254, S4 office	38-100	50	Partially
Room 255, Office	51-74	50	Yes
Room 257, Office (light intentionally disabled)	12-30	50	Yes
Teleconference room	43-52	50	Partially
Room 317, Medic office	50-133	50	Yes
NCO room	26-44	50	No
Room 115, Recruiter office	46-82	50	Partially
Room 134, Locker room	46-71	30	Yes
Room 140, Fitness room	52-70	50	Yes
Kitchen	13-99	50	Partially
Kitchen storage	9-39	30	Partially
Dining hall	40-73	30	Yes
Drill floor	37-79	50	Partially

Recommendations:

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

Appendix C
Water Damage and Mold

During the walk through, water damage, mold growth and peeling paint were observed in several areas.

Water damaged ceilings and walls, peeling paint and mold growth were observed in room 225, an office suite (Figure C-1). Water damaged ceilings and mold growth were also observed in room 227, an office suite (Figure C-2).

Figure C-1 – Water Damaged Ceiling and Walls, Peeling Paint and Mold Growth on Wall in room 225, office suite

Figure C-2 – Water Damage and Mold Growth on Ceiling in room 227, office suite

Recommendations:

1. Repair roofs and walls to prevent additional water leakage (RAC 2).

2. Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).

3. Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).

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

ARNG-CSG-P October 14, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Crestwood Armory, Crestwood, Illinois

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 December 18, 2013 at the Illinois Army National Guard Crestwood Armory, 13800 Crawford Avenue, Crestwood, Illinois. 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 Crestwood Armory is the base of operations for 122nd Bravo 2nd Battalion FA; 1744th Transportation Company; 433rd Signal Company; Golf 734th Support; and 405th Support BSB. During the week, most of the activities at the armory involve administrative work. The Crestwood Armory had an indoor firing range that was closed in the early 1980s. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Site personnel reported that no vehicle maintenance is performed at the armory since the Crestwood Armory shares the same building with FMS 2.

The armory is not available for rental for community activities. The drill floor is used for the site's family Christmas party. The industrial hygiene survey included a walkthrough of the facility and interviews with employees.

On the day of the armory survey, a concurrent industrial hygiene survey was being performed in FMS 2. During the survey in FMS 2 an engine fire occurred while a fuel injection pump was being replaced on a Humvee. Shop personnel reported that when a new fuel injection pump was installed and the engine was started, it began to race at full throttle. Attempts to stop the engine were unsuccessful and it ran until it overheated, began smoking, and caught fire. Shop personnel responded with portable fire extinguishers and extinguished the fire. Personnel from the armory smelled smoke and requested that air monitoring be performed in room 231 (an office) in the armory.

Air monitoring in room 231 was performed after the fire had been extinguished. The samples were analyzed for metals, organic vapors and total particulates. Air sampling results were compared to the applicable OSHA Permissible Exposure Limit (PEL) or the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV). Full-shift sampling results were compared to the 8-hour time-weighted average (TWA) assuming the same exposure during the non-sampled period. Details regarding the specific sample collection and analysis methods are included in the industrial hygiene survey report that was prepared for FMS 2. All air sampling results for metals, organic vapors and total particulates in room 231 were either below the limits of detection, or well below the applicable limits.

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. Sample ILCRARW12, which was collected on the floor in the vault, had a lead concentration of 421 $\mu g/ft^2$. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**
- **Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

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

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

For any further questions, please contact Non-Responsive

Non-Responsive

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

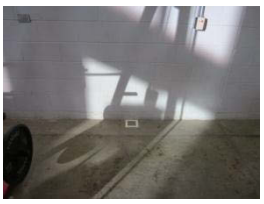
Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample ILCRARW12, which was collected on the floor in the vault, had a lead concentration of 421 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Crestwood Armory
Crestwood, Illinois
December 18, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
Sample ILCRARW11	Room 122, Orderly Room		<91
Sample ILCRARW12	Vault, on Floor		**421**

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
Sample ILCRARW13	Room 189, Family Assistance Center		<91
Sample ILCRARW14	Kitchen, on Range		<91
Sample ILCRARW15	PT Area, Former IFR, at Bullet Trap		164
Sample ILCRARW16	Field Blank	N/A	ND

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

Recommendations:

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).

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

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Crestwood, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11542
DFOH Lab Nos.: TM-14-65726 through TM-14-65731
Date Received: 12/27/13
Data Analyzed: 12/30/13 - 12/31/13
Date Issued: 01/02/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11542
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCRARW11	TM-14-65726	<10	<91
ILCRARW12	TM-14-65727	48	421
ILCRARW13	TM-14-65728	<10	<91
ILCRARW14	TM-14-65729	<10	<91
ILCRARW15	TM-14-65730	18	164
ILCRARW16**	TM-14-65731	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

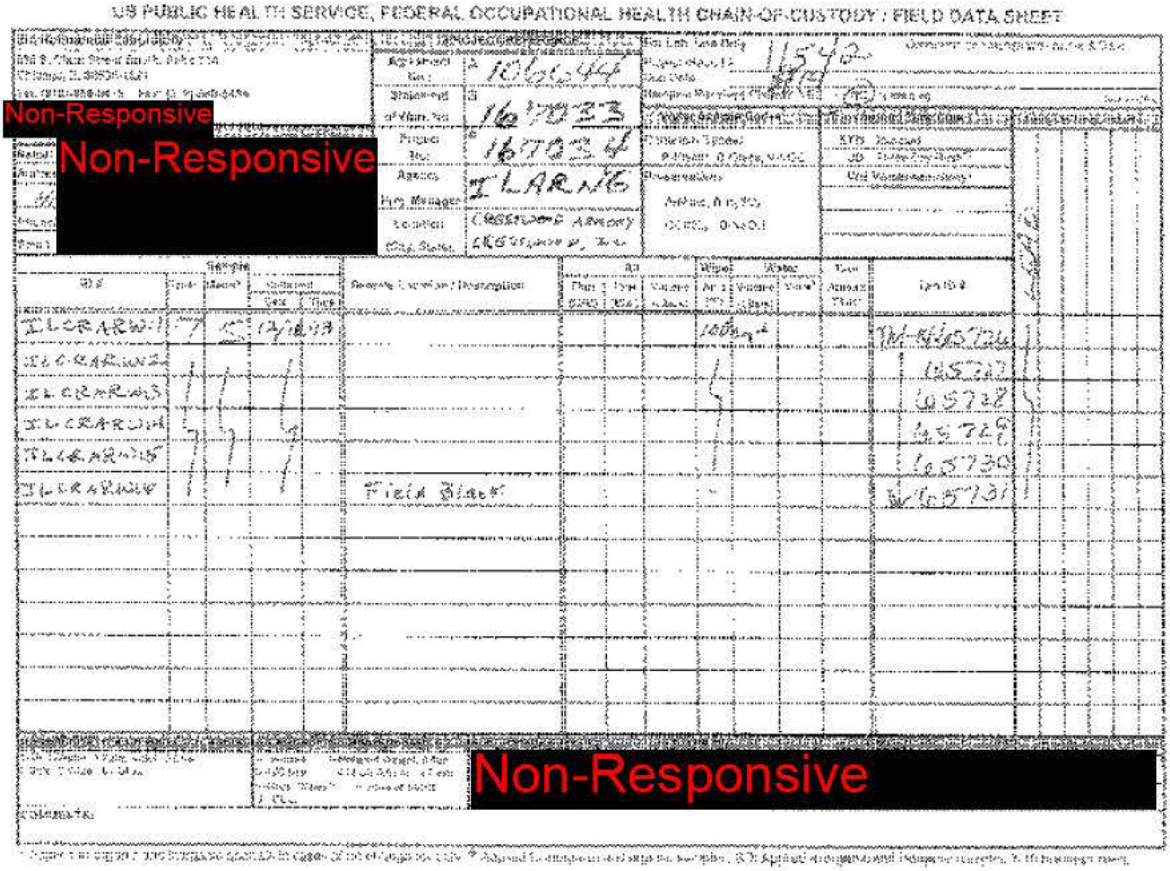
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11542
Page 2 of 2

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



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Forty-six spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Crestwood Armory
Crestwood, Illinois
December 18, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 122, Orderly	12-25	50	No
Room 204, Office	35-39	50	No
Room 203, Training NCO Office	73-103	50	Yes
Room 223, Janitor's Closet	8-10	30	No
Room 232, G634th Office	42-60	50	Partially
G634th Orderly Room	24-29	50	No
Room 233, Office	40-60	50	Partially
Room 229, Platoon SGT Room	12-26	50	No
Room 231, 1744th Admin Office	12-30	50	No
Room 234, Office	55-61	50	Yes
Room 235, 1744th TC Company Office	59-63	50	Yes
Room 236, Office	4-20	50	No
Room 230, Training Room	18-20	50	No
Men's Latrine	5-17	30	No
Women's Latrine	9-11	30	No
Room 127, Janitor's Closet	12-14	30	No
Room 115, Maintenance Engineer's Office	40-68	50	Partially
Front Foyer	11-13	30	No
Hallway	0-14	30	No
Room 113, Boiler Room	3-9	30	No
Room 110, Main Electrical Room	2-28	30	No
Room 163, Computer Room	40-67	50	Partially
Room 191, 433rd Signal Co Orderly Room	53-55	50	Yes
Room 191B, Office	37-77	50	Partially
Room 191A, Office	36-50	50	Partially

Room 185, 1744th TC Supply	50-68	30	Yes
Supply Room	6-25	30	No
Room 179, B Btry 2-122nd FA Supply	52-84	30	Yes
Supply Room	10-14	30	No
Vault	5-30	30	Partially
Maintenance Bay	4-10	50	No
Room 200, Orderly	2-24	50	No
Room 201, Readiness NCO Office	27-29	50	No
Company Commander Office	75-89	50	Yes
Room 216, Bravo Co 405th BSB Classroom	45-63	50	Partially
Room 192, Medical Exam	36-41	50	No
Room 192U, Doctor's Office	43-51	50	Partially
Room 192S, Hearing Exam Room	47-51	50	Partially
Room 192R, Exam Room 4	38-47	50	No
Room 192Q, Exam Room 3	52-56	50	Yes
Room 192P, Exam Room 2	40-50	50	Partially
Room 192N, Exam Room 1	49-70	50	Partially
Room 192L, Lab	48-53	50	Partially
Latrine	24-29	30	No
Room 192H, Dental Room	59-63	50	Yes
Room 192F, Exam Room	29-40	50	No
Room 192D, Immunizations Room	18-31	50	No
Room 192C, ECS/EKG Room	42-58	50	Partially
Room 192B, Vision Exam Room	33-39	50	No
Vitals Room	60-65	50	Yes
Drill Floor	23-38	50	No
Room 114, Chair and Table Storage	1-8	30	No
Room 106, Custodial Storage	15-18	30	No
Room 104, Kitchen	25-38	50	No
Dishwashing Area	19-31	50	No
Room 105, Storage	59-65	30	Yes
Room 104B, Office	39-58	50	Partially

Recommendations:

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

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

ARNG-CSG-P February 10, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Decatur Armory, Decatur, Illinois

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 December 5, 2013 at the Illinois Army National Guard Decatur Armory, 5550 Ocean Trail Road, Decatur, Illinois. 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 Decatur Armory was built in 1993 and it has about 41,227 square feet of floor space. The armory is the base of operations for Alpha 106th, Delta 106th, HHC 766th Eng BN, and the 766th EN Company FSC. 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 Decatur Armory had an indoor firing range (IFR) that was closed in approximately 2007 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 rental for community activities that include: senior walkers and job fairs. 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 434 µg/ft^2. The following actions are required:

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

- **Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

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

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

For any further questions, please contact Non-Responsive [redacted]

[redacted]

Non-Responsive [redacted]

[redacted]

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample ILD2W14, which was collected on the floor in the vault near the gun rack, had a lead concentration of 434 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Decatur Armory
Decatur, Illinois
December 5, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILD2W11	Room 147, Kitchen, on Serving Table		<91
ILD2W12	Caged Storage, Former IFR, at Firing Line		<91

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILD2W13	Caged Storage, Former IFR, at Bullet Trap		94
ILD2W14	Vault, on Floor, near Gun Rack		**434**
ILD2W15	Room 153, Lincoln's Challenge Classroom, on Table		<91
ILD2W16	Field Blank	N/A	ND

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

Recommendations:

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).

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

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Decatur, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11497
DFOH Lab Nos.: TM-14-65345 through TM-14-65350
Date Received: 12/09/13
Data Analyzed: 12/11/13 through 12/12/13
Date Issued: 12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC

Project 11497
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FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILD2W11	TM-14-65345	<10	<91
ILD2W12	TM-14-65346	<10	<91
ILD2W13	TM-14-65347	11	94
ILD2W14	TM-14-65348	48	434
ILD2W15	TM-14-65349	<10	<91
ILD2W16**	TM-14-65350	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

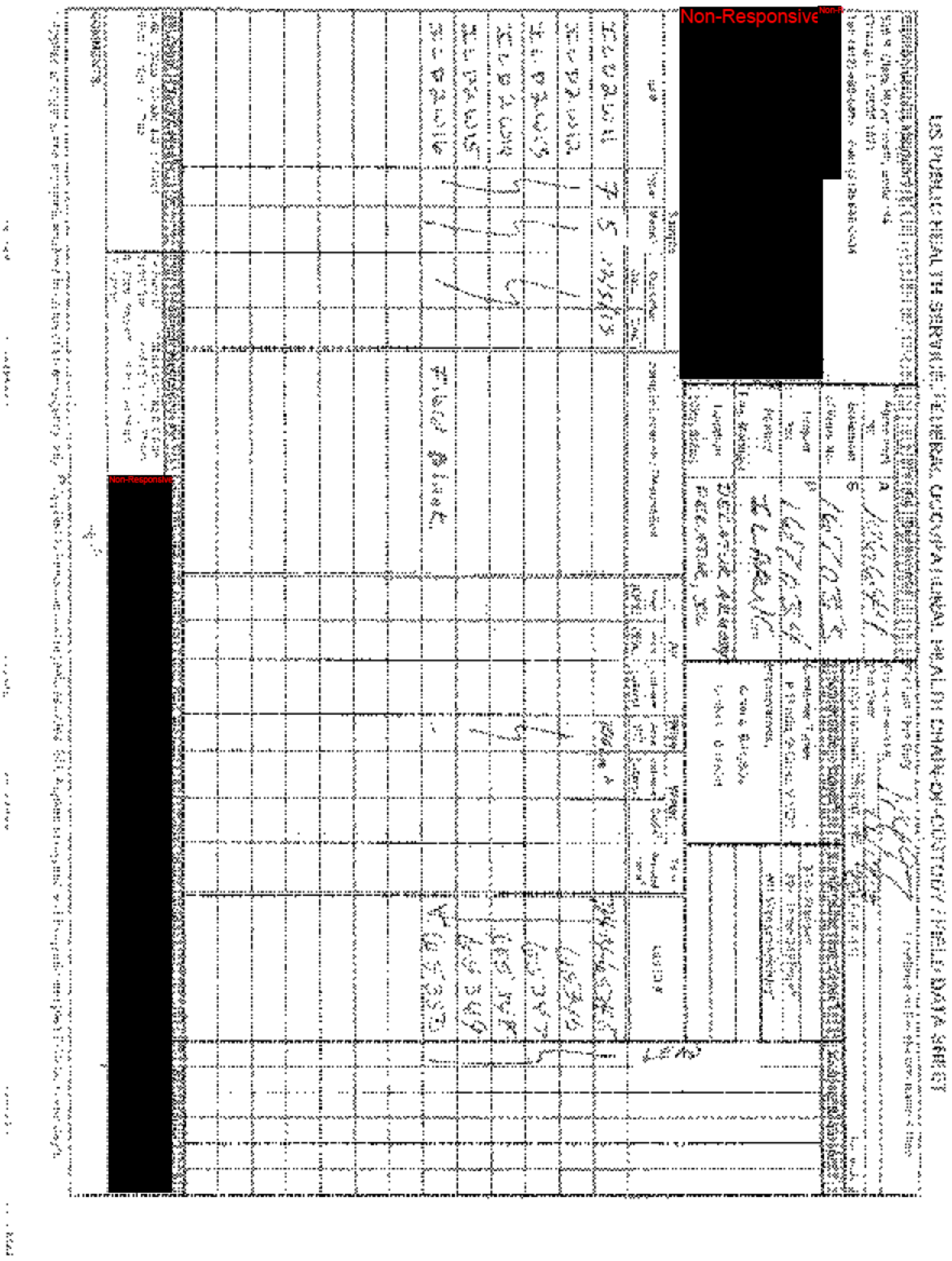
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC

Project 11497
Page 2 of 2



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Forty-one spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Decatur Armory
Decatur, Illinois
December 5, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 123, Office	17-48	50	No
Room 120, Battalion OIC Office	20-32	50	No
Room 125, Office Suite	22-35	50	No
Office	26-35	50	No
Room 122, Common Area	25-45	50	No
Room 118, S-1 NCO Office	48-90	50	Partially
Room 119, Office	43-47	50	No
Room 114, Office	56-61	50	Yes
Room 113, Office	29-38	50	No
Room 117, Office	26-29	50	No
Room 116, Office	26-33	50	No
Room 115, Office	50-75	50	Yes
Room 110, Network Room	21-51	30	Partially
Common Area, East	24-36	50	No
Room 112, Office	36-74	50	Partially
Room 106, Office	44-53	50	Partially
Room 108, Mail Room	11-31	50	No
Room 102, Recruiter Office, Foyer	5-41	30	Partially
Room 100, Recruiter Office	66-78	50	Yes
Room 103, Office	9-12	50	No
Room 167, Conference Room	43-56	50	Partially
Room 164, Office	21-44	50	No
Room 163, Office	11-35	50	No
Room 165, Office	23-64	50	Partially
Room 166, Office	22-37	50	No
Room 168, Office	57-71	50	Yes

Women's Latrine	42-48	30	Yes
Men's Latrine	17-32	30	Partially
Room 162, Cardio Room	59-79	50	Yes
Room 157, Conference Room	28-31	50	No
Room 160, Office	44-63	50	Partially
Room 156, Office	39-50	50	Partially
Room 158, Office	34-51	50	Partially
Room 159, Break Room	34-42	30	Yes
Room 161, Office	33-37	50	No
Room 154, Weight Room	34-42	50	No
Room 153, Classroom	32-44	50	No
Locker Room	5-10	30	No
Room 152, Office	85-108	50	Yes
Room 151, Office	51-65	50	Yes
Air Plenum/Storage	1-34	30	Partially
Range	2-31	30	Partially
Supply Room 1	7-21	30	No
Vault	18-33	30	Partially
Room 147, Kitchen	34-36	50	No
Room 148, Kitchen Storage	18-23	30	No
Drill Floor	18-34	50	No
Latrine	26-33	30	Partially
Room 132, Office Foyer	80-88	30	Yes
Room 129, Office	58-93	50	Yes
Room 128, Office	68-82	50	Yes
Room 133, Classroom	38-55	50	Partially
Room 171, Maintenance Office	24-36	50	No

Recommendations:

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

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

ARNG-CSG-P February 6, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Delavan Armory, Delavan, Illinois

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 December 4, 2013 at the Illinois Army National Guard Delavan Armory, 206 E. 3rd Street, Delavan, Illinois. 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 Delavan Armory was built in 1938 and it has about 28,784 square feet of floor space. The armory is the base of operations for the 1144th Transportation 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 Delavan Armory had an indoor firing range (IFR) 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 rental for community activities that include: senior walkers and Delavan days. 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. Three of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in the storage area (at the firing line in the former IFR) had a lead concentration of 784 µg/ft^2. A sample collected on the floor in the storage area (midrange in the former IFR) had a lead concentration of 2,250 µg/ft^2. A sample collected on the floor in the storage area (at the bullet trap area in the former IFR) had a lead concentration of 23,955 µg/ft^2. 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^2 (RAC 2).**

- **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 Delavan Armory. Thirty seven of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

The supply room had damaged floor tiles that were suspected asbestos containing materials (ACM). The following actions are required:

- **Damaged suspected asbestos containing floor tiles in the supply room should be analyzed for asbestos content, then repaired or removed and replaced (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). 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. Three of the surface wipe sample results exceeded the guideline for lead. Sample ILDEW13, which was collected on the floor in the storage area (at the firing line in the former IFR) had a lead concentration of 784 μg/ft^2. Sample ILDEW14, which was collected on the floor in the storage area (midrange in the former IFR) had a lead concentration of 2,250 μg/ft^2. Sample ILDEW15, which was collected on the floor in the storage area (at the bullet trap area in the former IFR), had a lead concentration of 23,955 μg/ft^2.

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^2 (RAC 2).

2. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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).

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).

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Delavan Armory
Delavan, Illinois
December 4, 2013

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILDEW11	Vault, on Floor		107
ILDEW12	Drill Floor, Center, on Floor		<91
ILDEW13	Storage, Former IFR, at Firing Line, on Floor		**784**
ILDEW14	Storage, Former IFR, Midrange, on Floor		**2,250**
ILDEW15	Storage, Former IFR, at Bullet Trap, on Floor		**23,955**
ILDEW16	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

FOH ENVIRONMENTAL LABORATORY
636 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Delavan, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11486R
DFOH Lab Nos.: TM-14-65284 through TM-14-65289
Date Received: 12/06/13
Data Analyzed: 12/11/13 through 12/12/13
Date Issued: 12/13/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11486R
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILDEW11	TM-14-65284	12	107
ILDEW12	TM-14-65285	<10	<91
ILDEW13	TM-14-65286	86	784
ILDEW14	TM-14-65287	248	2250
ILDEW15	TM-14-65288	2635	23955
ILDEW16**	TM-14-65289	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

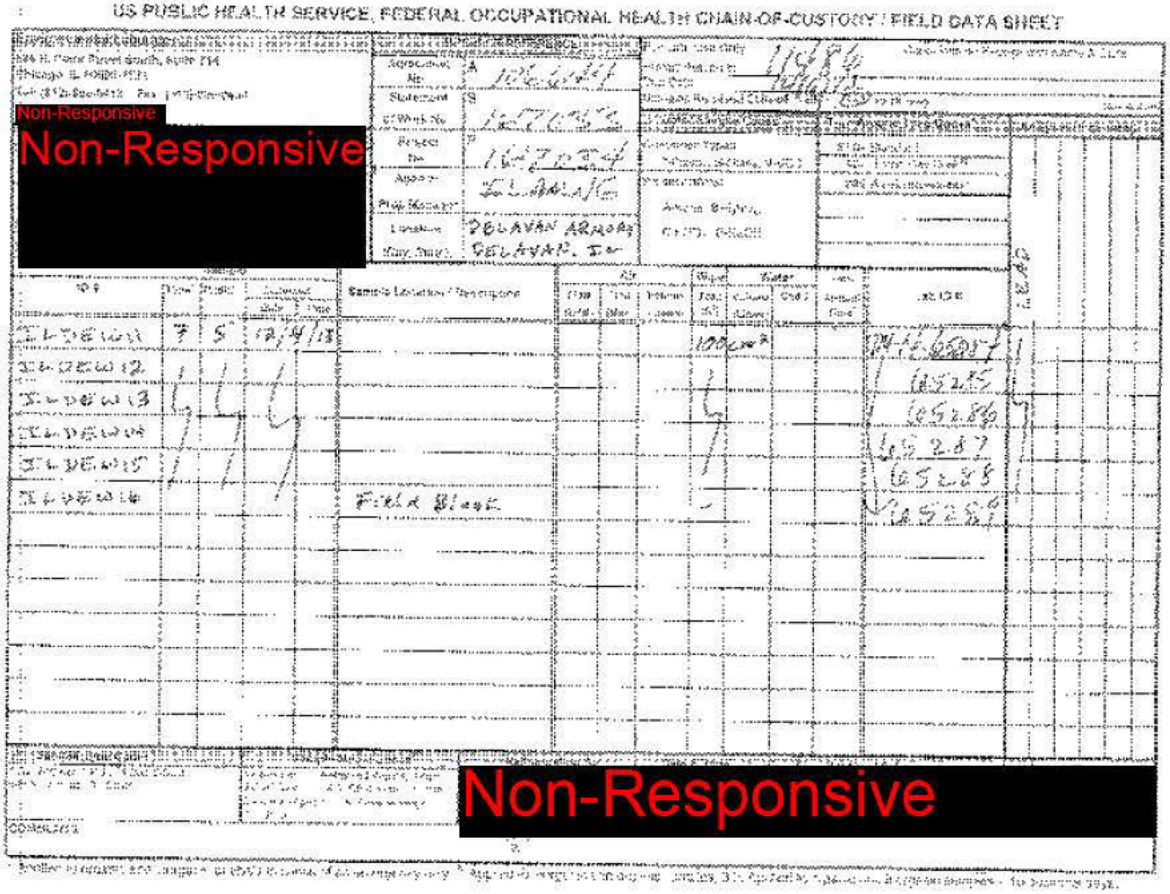
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11486R
Page 2 of 2

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



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Thirty seven spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Delavan Armory
Delavan, Illinois
December 4, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 122, Classroom	8-17	50	No
Room 123, Foyer Lobby	5-22	30	No
Room 125, Office	32-35	50	No
Room 124, Hallway	10-13	30	No
Room 126, Office	44-47	50	No
Room 127, Office	40-43	50	No
Room 128, Office	52-71	50	Yes
Room 130, Office	20-21	50	No
Room 129, Hallway	18-23	30	No
Room 131, Men's Latrine	16-25	30	No
Room 133, Corridor	11-12	30	No
Room 134, Copy Room	17-40	50	No
Room 132, Office	51-57	50	Yes
Room 101, Public Lobby	4-11	30	No
Room 104, Corridor	22-23	30	No
Room 103, Men's Restroom	7-33	30	Partially
Room 105, Women's Restroom	22-24	30	No
Room 135, Drill Floor	28-44	50	No
Room 106, Garage	3-14	30	No
Maintenance Office	37-43	50	No
Room 107, Office	78-95	50	Yes
Room 109, Kitchen	19-29	50	No
Room 108, Lobby	14-16	30	No
Room 110, Orderly Room	29-47	50	No
Room 111, Supply	19-21	30	No

Room 112, Vault	23-33	30	Partially
Stage	28-33	30	Partially
Stage Storage	2-7	30	No
Room 119, Passage	5-10	30	No
Room 121, Office	16-18	50	No
Room 120, Lab	17-19	50	No
Room 116, Men's Latrine	18-21	30	No
Room 117, Men's Showers	17-33	30	Partially
Men's Locker Room	10-25	30	No
Library	83-100	50	Yes
Room 115, Hallway	8-12	30	No
Room 118, Conference Room	47-92	50	Partially
Weight Room, former IFR	20-33	50	No
Basement Storage	3-25	30	No
Boiler, Former Coal Storage	0-1	30	No
Boiler Room	5-14	30	No

Recommendations:

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

Appendix C
Suspected Asbestos Containing Materials

The supply room had damaged suspected asbestos containing floor tiles. (Figure C-1 and Figure C-2). Damaged suspected asbestos containing floor tiles (ACM) in the supply room should be analyzed for asbestos content, then repaired or removed and replaced.

Figure C-1 Damaged Suspected Asbestos Containing Floor Tiles in Supply Room

Figure C-2 Damaged Suspected Asbestos Containing Floor Tiles in Supply Room

Recommendations:

1. Damaged suspected asbestos containing floor tiles (ACM) in the supply room should be analyzed for asbestos content, then repaired or removed and replaced (RAC 2).

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 Illinois

SUBJECT: Industrial Hygiene Survey at Elgin Armory, Elgin, Illinois

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 7, 2014 at the Illinois Army National Guard Elgin Armory, 254 Raymond St, Elgin, Illinois. The site point of contact was Non-Respon [redacted].

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 Elgin Armory was built in 1938. The facility has 31,268 square feet of floor space. The Elgin Armory is the base of operations for Bravo Company 1st Battalion, the 178th Infantry regiment, and the Veterans' Service Office. 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 Elgin Armory had an indoor firing range that was closed in 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 available for rental for community activities that include training sessions for the Elgin police department. 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. Six 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 233 $\mu g/ft^2$. A sample collected on the floor in unit storage, behind the firing line in the former IFR, had a lead concentration of 1,508 $\mu g/ft^2$. A sample collected on the floor in unit storage, at the firing line in the former IFR, had a lead concentration of 331 $\mu g/ft^2$. A sample collected on the floor in unit storage, midrange in the former IFR,

had a lead concentration of 268 µg/ft^2. A sample collected on the floor against the east wall in unit storage, at the bullet trap in the former IFR, had a lead concentration of 4,190 µg/ft^2. A sample collected on the floor against the west wall in unit storage, at the bullet trap in the former IFR, had a lead concentration of 1,788 µg/ft^2. The following actions are required:

- **Clean the horizontal surfaces where lead may be present using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).**
- **Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).**
- **When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition (RAC 2).**

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

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

During the walk through, water damage, mold and peeling paint were observed in the women's latrine and shower. The following actions are required:

- **Repair roofs and walls to prevent additional water leakage (RAC 2).**
- **Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).**
- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached
C.	Water Damage and Mold	Attached

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Six of the surface wipe sample results exceeded the guideline for lead. Sample ILELW12, which was collected on the floor in the vault, had a lead concentration of 233 $\mu g/ft^2$. Sample ILELW14, which was collected on the floor in unit storage, behind the firing line in the former IFR, had a lead concentration of 1,508 $\mu g/ft^2$. Sample ILELW15, which was collected on the floor in unit storage, at the firing line in the former IFR, had a lead concentration of 331 $\mu g/ft^2$. Sample ILELW16, which was collected on the floor in unit storage, midrange in the former IFR, had a lead concentration of 268 $\mu g/ft^2$. Sample ILELW17, which was collected on the floor against the east wall in unit storage, at the bullet trap in the former IFR, had a lead concentration of 4,190 $\mu g/ft^2$. Sample ILELW18, which was collected on the floor against the west wall in unit storage, at the bullet trap in the former IFR, had a lead concentration of 1,788 $\mu g/ft^2$.

Recommendations:

1. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (RAC 2).

2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).

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

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Elgin Armory
Elgin, Illinois
August 7, 2014

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILELW11	Room 120, Conference room, on conference table		<10
ILELW12	Vault, on floor		**233**
ILELW13	Vault, on table		25
ILELW14	Unit storage, former IFR, behind firing line, on floor		**1,508**
ILELW15	Unit storage, former IFR, at firing line, on floor		**331**
ILELW16	Unit storage, former IFR, midrange, on floor		**268**

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILELW17	Unit storage, former IFR, at bullet trap, east wall, on floor		**4,190**
ILELW18	Unit storage, former IFR, at bullet trap, west wall, on floor		**1,788**
ILELW19	Kitchen, on convection oven		<10
ILELW20	Drill floor, center		<10
ILELW21	Field blank	N/A	ND

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

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Elgin, IL (Elgin Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11968
DFOH Lab Nos.: TM-14-70499 through TM-14-70509
Date Received: 08/11/14
Data Analyzed: 08/12/14 – 08/13/14
Date Issued: 08/13/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

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

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILELW11	TM-14-70499	<10	<10
ILELW12	TM-14-70500	233	233
ILELW13	TM-14-70501	25	25
ILELW14	TM-14-70502	1508	1508
ILELW15	TM-14-70503	331	331
ILELW16	TM-14-70504	268	268
ILELW17	TM-14-70505	4190	4190
ILELW18	TM-14-70506	1788	1788
ILELW19	TM-14-70507	<10	<10
ILELW20	TM-14-70508	<10	<10
ILELW21**	TM-14-70509	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Lead – Furnace AA	OSHA ID-121	0.25 µg/ft²	0.50 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11968
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434
Non-Responsive

Contact Information
Name: Non-Responsive
Addr:
Phon:
Emai:

PROJECT REFERENCE
Agreement No.: A 106644
Statement of Work No.: S 180648
Project No: P 189649
Agency Proj. Manager: ILARNG
Location (City, State): Elgin Armory Elgin, IL

For Lab Use Only
Project /Report #: 11968
Due Date: 8/19/14
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date
Rev. 07/2010

Water Sample Codes
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes*
STD- Standard
3D- Three Day Rush@
WH Weekend/Holiday*

Analysis Requested
LEAD

Sample ID #	Type¹	Media²	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft^2)	Water Volume (Liters)	Water Code³	Turn Around Time⁴	Lab ID #
ILELW11	7	5	8/7	14					1				TM-14-70499
12	〃	〃	〃						〃				70500
13	〃	〃	〃						〃				70501
14	〃	〃	〃						〃				70502
15	〃	〃	〃						〃				70503
16	〃	〃	〃						〃				70504
17	〃	〃	〃						〃				70505
18	〃	〃	〃						〃				70506
19	〃	〃	〃						〃				70507
20	〃	〃	〃						〃				70508
21	〃	〃	〃		Field blank				--				70509

Sample Type Codes¹
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8 - Other

Sample Media Codes²
1-Charcoal 2-Matched Weight, 0.8um
3-PVC filter 4-M CE 0.8 um , 37 mm
5 -Ghost Wipes™ 6. Passive badge
7. Other

Relinquished By: Non-Responsive
Date & Time:
Received By:
Date & Time:

COMMENTS: 1 square foot samples

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

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Ten spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Elgin Armory
Elgin, Illinois
August 7, 2014

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 128, Conference room	55-71	50	Yes
Room 130, Facility manager office	84-126	50	Yes
Facility manager latrine and shower	35-64	30	Yes
Room 134, Office	36-39	50	No
Room 132, Illinois Department of Veterans' Affairs office	98-104	50	Yes
Illinois Department of Veterans' Affairs storage	35-43	30	Yes
Lobby	35-52	30	Yes
Room 103, Men's latrine	28-32	30	Partially
Room 105, Women's latrine	23-28	30	No
Supply room	33-37	30	Yes
Vault	19-21	30	No
Drill floor	70-137	50	Yes
Boiler room	15-29	30	No
Storage next to boiler room	1-10	30	No
Storage between boiler room and former IFR	11-14	30	No
Unit storage and simulator	1-10	30	No
Room 118, Locker room	35-44	30	Yes
Locker room	32-39	30	Yes
Shower between lockers	34-42	30	Yes
Latrine between lockers	18-21	30	No
Room 122, Classroom	72-132	50	Yes
Kitchen	32-67	50	Partially
Room 125, Office	128-151	50	Yes
Room 126, Office	130-138	50	Yes

Room 127, Office	110-126	50	Yes
Maintenance bay, bay door open	55-62	50	Yes

Recommendations:

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

Appendix C
Water Damage and Mold

During the walk through, water damage, mold and peeling paint were observed in the women's latrine and showers (Figure C-1).

Figure C-1 – Water Damage and Mold on Ceiling Tiles in Women's Latrine and Shower

Recommendations:

1. Repair roofs and walls to prevent additional water leakage (RAC 2).

2. Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).

3. Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).

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 Illinois

SUBJECT: Industrial Hygiene Survey at Joliet Armory, Joliet, Illinois

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 29, 2015 at the Illinois Army National Guard Joliet Armory, 2900 W. Jefferson St, Joliet, Illinois. 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 Joliet Armory was built in 1958, and it has about 47,987 square feet of floor space. The armory is the base of operations for Detachment 1 Charlie Company 1st Battalion 178th Infantry; the Illinois Department of Veterans Affairs, and Golf Company 634th. 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 Joliet 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: University of St. Francis athletics clubs; Boy Scout meetings; and family assistance. 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 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).**

At the request of site personnel a walk through and visual inspection for water damage and mold was performed. Water damaged ceiling tiles were observed in the maintenance office, conference room, and the cold storage area. The following actions are required:

- **Identity the source of water leaks (RAC 2).**

- **Repair roof leaks to prevent additional water leakage (RAC 2).**

- **Provide better insulation for the cutoff valves on the chilled water lines to prevent condensation, dripping and water damage to ceiling tiles (RAC 2).**

- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

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

- **Based on the age of the building, an asbestos survey should be performed. Asbestos containing materials (ACM) should be identified and armory 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 site (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Joliet Armory

Lead – Wipe Sampling

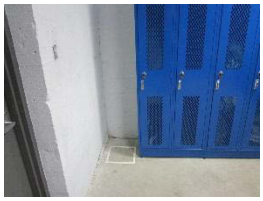
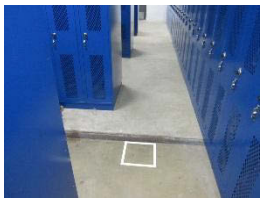
Surface Area Wipe Samples

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

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

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

Table 1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Joliet Armory
Joliet, Illinois
May 29, 2015

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILJOW31	Vault 111, on floor		<10
ILJOW32	Classroom #121, on desktop		<10
ILJOW33	Locker room, former IFR at bullet trap, SE corner on floor		22
ILJOW34	Locker room, former IFR at bullet trap, SW corner on floor		104
ILJOW35	Locker room, former IFR 60’ downrange, on floor		35
ILJOW36	Locker room, former IFR 30’ downrange, on floor		38

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILJOW37	Locker room, former IFR at firing line, on floor		50
ILJOW38	Drill floor, center on floor		<10
ILJOW39	Kitchen, on serving table		<10
ILJOW40	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).**

Water Damage and Mold

At the request of site personnel a walk through and visual inspection for water damage and mold was performed. Water damaged ceiling tiles were observed in the maintenance office, conference room, and in the cold storage area. Personnel reported that condensation and dripping from the cutoff valves on the chilled water was the source of the water damage in the maintenance office and conference room (Figure 1). They also reported that the water damage in the cold storage area was from a roof leak (Figure 2).

Figure 1 - Water Damage on Ceiling Tiles in Conference Room

Figure 2 - Water on Floor From Roof Leak in Cold Storage

Recommendations:

1. **Identity the source of water leaks (RAC 2).**

2. **Repair roof leaks to prevent additional water leakage (RAC 2).**

3. **Provide better insulation for the cutoff valves on the chilled water lines to prevent condensation, dripping and water damage to ceiling tiles (RAC 2).**

4. **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

Asbestos Containing Materials and Lead Paint

Site personnel reported that no asbestos or lead paint surveys for the armory were available for review on the day of the survey.

Recommendations:

1. **Based on the age of the building, an asbestos survey should be performed. Asbestos containing materials (ACM) should be identified and armory personnel should be informed of their location as required by 29 CFR 1910.1000(j)(2) (RAC 2).**

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).**

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Joliet, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 12875
DFOH Lab Nos.: TM-15-80732 through TM-15-80741
Date Received: 06/05/15
Data Analyzed: 06/05/15
Date Issued: 06/09/15

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12875
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

636 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILJOW31	TM-15-80732	<10	<10
ILJOW32	TM-15-80733	<10	<10
ILJOW33	TM-15-80734	22	22
ILJOW34	TM-15-80735	104	104
ILJOW35	TM-15-80736	35	35
ILJOW36	TM-15-80737	38	38
ILJOW37	TM-15-80738	50	50
ILJOW38	TM-15-80739	<10	<10
ILJOW39	TM-15-80740	<10	<10
ILJOW40**	TM-15-80741	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	200 for facilities (all surfaces)	NG Pam 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006, http://www.nobpdc.nob.army.mil/pubs/420/nopam420_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 Firing Ranges, 3 November 2006, http://www.nobpdc.nob.army.mil/pubs/420/nopam420_15.pdf

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12875
Page 2 of 2

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

536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

Non-Responsive

Agreement No.: A 106644
Statement of Work No.: B 188318
Project No: P 188319
Agency: ILARNG
Proj. Manager:
Location (City, State): Joliet Armory Joliet, IL

For Lab Use Only: 12875
Project /Report #:
Due Date: 10/12/15
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date

Containers Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

STD- Standard
3D- Three Day Rush*
WH Weekend/Holiday*

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft²)	Water Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #
IL JOW 31	7	5	5/14/15						1				1M-15-80732
32													80733
33													80734
34													80735
35													80736
36													80737
37													80738
38													80739
39									↓				80740
↓ 40	↓	↓	↓		Field blank				–				↓ 80741

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

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

Non-Responsive

COMMENTS: samples are 1 square foot

* Applies to organic and inorganic analysis in cases of an emergency only. [3] Applies to inorganic and organic samples. SD: Applies 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 Illinois

SUBJECT: Industrial Hygiene Survey at Kewanee Armory, Kewanee, Illinois

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 September 25, 2014 at the Illinois Army National Guard Kewanee Armory, 111 North East St, Kewanee, Illinois. 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 Kewanee Armory was built in 1954, and it has about 41,213 square feet of floor space. The armory is the base of operations for HHT and the 2-106th Cavalry Squadron. 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 Kewanee Armory had an indoor firing range (IFR) that was closed in 2002 and converted to a classroom and weight 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 practices and home games for the Blackhawk College basketball and volleyball teams. 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 Kewanee Armory. Three 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).**

During the walk through, water damage and mold were observed in several areas. Water damaged ceiling tiles and mold growth were observed in the combined classroom and weight room, the stairwell adjacent to the drill floor, the supply sergeant office, and in the hallway across from the HHB office.

Site personnel reported that the ceiling tiles in the supply sergeant office had been replaced in the summer of 2014. The ceiling tile damage observed in the supply sergeant office on the day of the survey indicates that water leaks are continuing. The following actions are required:

- **Repair roofs and walls to prevent additional water leakage (RAC 2).**

- **Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).**

- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached
C.	Water Damage and Mold	Attached

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

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

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Kewanee Armory
Kewanee, Illinois
September 25, 2014

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILKEAW11	Vault, on floor		58
ILKEAW12	Drill floor, center, on floor		<10

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILKEAW13	Kitchen, on top of oven		<10
ILKEAW14	Classroom, former IFR, at firing line on floor		<10
ILKEAW15	Weight room, former IFR, at bullet trap on floor		<10
ILKEAW16	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

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Kewanee, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 12184
DFOH Lab Nos.: TM-14-74049 through TM-14-74054
Date Received: 09/30/14
Data Analyzed: 10/14/14 – 10/16/14
Date Issued: 10/17/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

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

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKEAW11	TM-14-74049	58	58
ILKEAW12	TM-14-74050	<10	<10
ILKEAW13	TM-14-74051	<10	<10
ILKEAW14	TM-14-74052	<10	<10
ILKEAW15	TM-14-74053	<10	<10
ILKEAW16**	TM-14-74054	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12184
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434
Non-Responsive

Contact Information
Name: Non-Responsive
Address:
Phone:
Email:

PROJECT REFERENCE
Agreement No.: A 106644
Statement of Work No.: S 180648
Project No: P 189649
Agency: ILARNG
Proj. Manager:
Location (City, State): Kewanee Armory Kewanee, IL

For Lab Use Only
Project /Report #: 12/8/14
Due Date:
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date

Water Sample Codes*
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes*
STD- Standard
3D- Three Day Rush@
WH Weekend/Holiday*

Analysis Requested: Lead

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft²)	Water Volume (Liters)	Water Code[3]	Turn Around Time[4]	Lab ID #
ILKEAW11	7	5	9/25	14					1				TM-N-74049
12	"	"	"						"				74050
13	"	"	"						"				74051
14	"	"	"						"				74052
15	"	"	"						"				74053
16	"	"	"		Field blank				-				74054

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8 - Other

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

Relinquished By: Non-Responsive
Date & Time:
Received By:
Date & Time:

COMMENTS: Wipes are 1 square foot

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

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Three spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Kewanee Armory
Kewanee, Illinois
September 25, 2014

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Vault	28-37	30	Partially
Supply room	16-46	30	Partially
Supply office	71-85	50	Yes
Drill floor	71-102	50	Yes
S3 Office	62-99	50	Yes
Dining hall	62-115	30	Yes
Kitchen	55-119	50	Yes
Club room	58-67	30	Yes
Garage	19-45	30	Partially
Weight room and Classroom	50-115	50	Yes
Classroom next to Communications room	78-87	50	Yes
HHB Office	60-66	50	Yes
Orderly room	56-64	50	Yes
Foyer	58-60	30	Yes

Recommendations:

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

Appendix C
Water Damage and Mold

During the walk through, water damage and mold were observed in several areas. Water damaged ceiling tiles and mold growth were observed in the combined classroom and weight room, the stairwell adjacent to the drill floor, the supply sergeant office, and in the hallway across from the HHB office (Figures C-1 and C-2).

Site personnel reported that the ceiling tiles in the supply sergeant office had been replaced in the summer of 2014. The ceiling tile damage observed in the supply sergeant office on the day of the survey indicates that water leaks are continuing.

Figure C-1 – Water Damage and Mold on ceiling tiles in hallway across from HHB Office

Figure C-2 – Water Damage and Mold on Ceiling Tiles in Supply Sergeant Office (ceiling tiles were replaced in summer of 2014)

Recommendations:

1. Repair roofs and walls to prevent additional water leakage (RAC 2).

2. Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).

3. Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).

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 Illinois

SUBJECT: Industrial Hygiene Survey at Machesney Park Armory, Machesney Park, Illinois

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 September 8, 2014 at the Illinois Army National Guard Machesney Park Armory, 10451 N. 2nd St, Machesney Park, Illinois. 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 Machesney Park Armory was built in 1993. The facility has about 53,000 square feet of floor space. The armory is the base of operations for the 33rd BTSB, 135th Chemical Company, Charlie Company RSP, and the Department of Veterans' Affairs. 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 Machesney Park Armory had an indoor firing range (IFR) that was closed and converted to a supply room and CERF-P room. 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 Girl Scout cookie distribution. 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 Machesney Park 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).**

During the walk through, water damaged ceiling tiles and mold were observed in the fitness room. The following actions are required:

- **Repair roofs and walls to prevent additional water leakage (RAC 2).**

- **Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).**

- **Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

Appendix	Title	Status
A.	Lead – Wipe Sampling	Attached
B.	Lighting	Attached
C.	Water Damage and Mold	Attached

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

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

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Machesney Park Armory
Machesney Park, IL
September 8, 2014

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILA1W11	CERFP, former IFR, at bullet trap, on floor		111
ILA1W12	CERFP, former IFR, behind firing line, on floor		<91

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILA1W13	Drill floor, center, on floor		<91
ILA1W14	Vault, on floor		<91
ILA1W15	Food storage area, on shelf		<91
ILA1W16	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

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Machesney Park, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 12034R
DFOH Lab Nos.: TM-14-72002 through TM-14-72007
Date Received: 09/12/14
Data Analyzed: 09/15/14 – 09/16/14
Date Issued: 10/15/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

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

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILA1W11	TM-14-72002	12	111
ILA1W12	TM-14-72003	<10	<91
ILA1W13	TM-14-72004	<10	<91
ILA1W14	TM-14-72005	<10	<91
ILA1W15	TM-14-72006	<10	<91
ILA1W16**	TM-14-72007	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12034R
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

Contact Information
Name: Non-Responsive
Addr
Phon
Emai

PROJECT REFERENCE
Agreement No.: A 106644
Statement of Work No.: S 180648
Project No: P 189649
Agency Proj. Manager: ILARNG
Location (City, State): Machesney Park Armory, Machesney Park, IL

For Lab Use Only
Project /Report #: 12034
Due Date: 9/10/14
Samples Received Chilled? YES / NO (circle one)
Conditions on Receipt with Name & Date
Rev. 07/2010

Water Sample Codes*
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes*
STD- Standard
3D- Three Day Rush@
WH Weekend/Holiday*

Analysis Requested: Lead

Sample ID #	Type*	Media*	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft^2)	Water Volume (Liters)	Water Code*	Turn Around Time*	Lab ID #
ILA1W11	7	5	9/8/14						100 cm^2				M-14-72002
12	↓	↓	↓						↓				72003
13													72004
14													72005
15													72006
16	↓	↓	↓		Field blank				-				↓ 72007

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

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

Relinquished By | Date & Time | Received By | Date & Time

Non-Responsive

COMMENTS:

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

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Eleven spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Machesney Park Armory
Machesney Park, IL
September 8, 2014

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
CERFP	19-38	30	Partially
Kitchen	30-71	50	Partially
Food storage	70-72	30	Yes
Room 137, Storage	42-45	30	Yes
Vault	31-58	30	Yes
Room 139, Office	58-83	50	Yes
Drill floor*	27-35	50	No
Room 146, Storage	32-36	30	Yes
Supply Sergeant office	74-113	50	Yes
Room 133, Platoon storage	28-32	30	Partially
Room 129, Supply room*	18-36	30	Partially
Room 128, Vault	45-68	30	Yes
Men's latrine	31-48	30	Yes
Men's showers	2-5	30	No
Room 147, Mechanical	10-11	30	No
Room 144, Locker room	35-40	30	Yes
Room 143, Locker room	34-53	30	Yes
Room 154, Fitness room	37-68	50	Partially
Room 162B, Classroom	102-156	50	Yes
Room 162A, Classroom	49-95	50	Partially
Room 157, Veterans' Affairs office	78-96	50	Yes
Open office area	141-146	50	Yes
Office commons area	84-109	50	Yes
Room 182, CSM Office	40-64	50	Partially
Room 181, Military family life consultant office	89-133	50	Yes

Room 149, Maintenance and storage	17-36	30	Partially
Men's latrine	32-43	30	Yes

Notes: 1) * = burned out light bulbs should be replaced

Recommendations:

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

Appendix C
Water Damage and Mold

During the walk through, water damaged ceiling tiles and mold were observed in the fitness room (Figure C-1).

Figure C-1 – Water Damage and Mold on Ceiling Tiles in Fitness room

Recommendations:

1. Repair roofs and walls to prevent additional water leakage (RAC 2).

2. Perform mold abatement. Engage a licensed mold abatement contractor to perform the mold abatement. Mold damaged materials should be removed and discarded or cleaned up to remove mold (RAC 2).

3. Perform periodic inspections to identify sources of water damage. Conduct repairs of water damaged areas as soon as they are identified (RAC 2).

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

ARNG-CSG-P January 28, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Macomb Armory, Macomb, Illinois

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 December 3, 2013 at the Illinois Army National Guard Macomb Armory, 135 W. Grant Street, Macomb, Illinois. 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 Macomb Armory was built in 1954 and renovated in 2009. The facility has 43,634 square feet of floor space. The armory is the base of operations for the 44th Chemical Battalion and Bravo Battery 123rd Field Artillery. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed by armory personnel at the facility. The adjacent FMS is permitted to use the armory maintenance bay when additional maintenance space is needed. On the day of survey, an FMS maintenance mechanic was performing an annual service on a FMTV in the maintenance bay.

The Macomb Armory had a firing range that is now closed. The firing range area was decontaminated and converted into a dining hall. 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: K-8 basketball games and 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 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 Macomb Armory. Thirteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

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

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
December 3, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILMBARW11	Vault, on Floor		<91
ILMBARW12	Drill Floor, Center, on Floor		<91

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILMBARW13	Maintenance Bay, on Microwave		<91
ILMBARW14	Kitchen, on Counter		<91
ILMBARW15	Break Room, on Table		<91
ILMBARW16	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

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Macomb, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11489
DFOH Lab Nos.: TM-14-65302 through TM-14-65307
Date Received: 12/06/13
Data Analyzed: 12/11/13 through 12/12/13
Date Issued: 12/12/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC

Project 11489
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMBARW11	TM-14-65302	<10	<91
ILMBARW12	TM-14-65303	<10	<91
ILMBARW13	TM-14-65304	<10	<91
ILMBARW14	TM-14-65305	<10	<91
ILMBARW15	TM-14-65306	<10	<91
ILMBARW16**	TM-14-65307	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

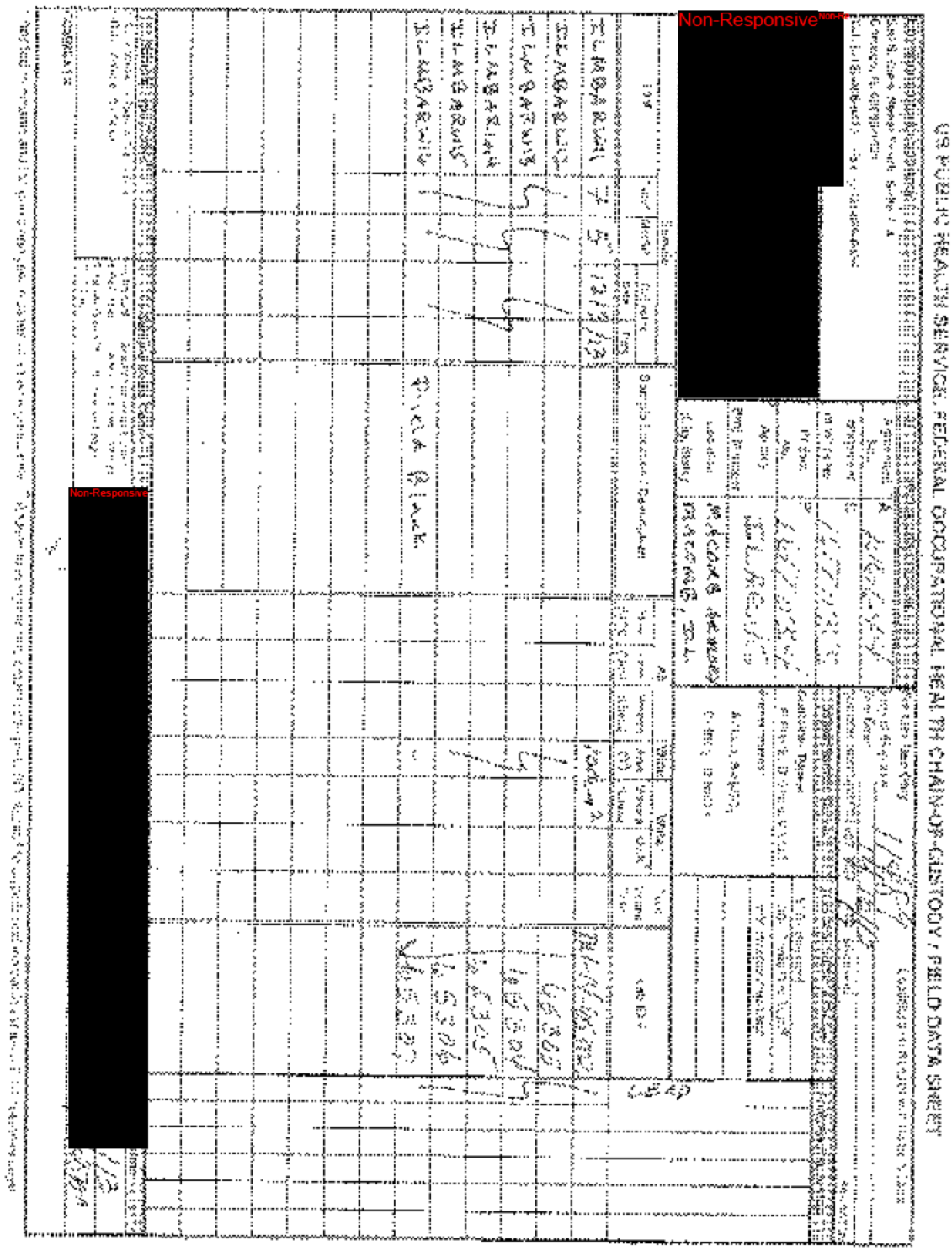
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC

Project 11489
Page 2 of 2



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Thirteen spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
December 3, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Classroom	66-78	50	Yes
Kitchen	93-104	50	Yes
Men's Latrine	63-80	30	Yes
Men's Showers	66-97	30	Yes
Men's Locker Room	20-32	30	Partially
Weight Room	12-26	50	No
Maintenance Bay	16-18	50	No
Room 543, Orderly Room	67-85	50	Yes
Drill Floor	91-114	50	Yes
Maintenance Room and Storage Area	7-9	30	No
Boiler Room	11-38	30	Partially
Room 531, Office	54-60	50	Yes
Room 529, Office	55-61	50	Yes
Kitchenette	43-46	50	No
Room 524, Office	72-84	50	Yes
Room 519, Office	67-74	50	Yes
Room 535, Copy Room	78-93	50	Yes
Room 513, Office	89-103	50	Yes
Supply Room	27-50	30	Partially
Vault	48-56	30	Yes
Room 511, Office	76-83	50	Yes
Room 514, Office	50-54	50	Yes
Room 502, Office	50-57	50	Yes
Room 507, Office	44-51	50	Partially
Room 588, Data Communications Closet	17-35	30	Partially

Room 554, Readiness NCO Office	42-51	50	Partially
Room 107, Conference Room	13-20	50	No
Room 553, VA Office	60-75	50	Yes
Room 552, Office	52-69	50	Yes
Room 551, Office	71-75	50	Yes
Kitchenette	52-55	50	Yes
Room 548, Classroom	26-32	50	No
Room 546, Library	92-107	50	Yes
Room 547, Office	36-46	50	No
Women's Latrine	62-82	30	Yes
Women's Locker Room	87-97	30	Yes
Women's Showers	81-96	30	Yes
Women's Locker Room	43-49	30	Yes

Recommendations:

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

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

ARNG-CSG-P February 10, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Mattoon Armory, Mattoon, Illinois

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 December 5, 2013 at the Illinois Army National Guard Mattoon Armory, 112 E. Broadway Ave, Mattoon, Illinois. 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 Mattoon Armory was built in 1956 and it has about 34,483 square feet of floor space. The armory is the base of operations for Alpha Company 634th BSB and Lima Company RSP. 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 Mattoon Armory had an indoor firing range (IFR) 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 not available for rental for community activities. 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. All 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 525 µg/ft^2. A sample collected on the floor in the storage area, at the firing line in the former IFR, had a lead concentration of 74,400 µg/ft^2. A sample collected on the floor in the storage area, midrange in the former IFR, had a lead concentration of 16,800 µg/ft^2. A sample collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 590,000 µg/ft^2. A sample collected on the shelf in room 27 had a lead concentration of 2,050 µg/ft^2. 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^2 (RAC 2).**

- **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 Mattoon Armory. Fourteen of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). 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. All of the surface wipe sample results exceeded the guideline for lead. Sample ILMTW1, which was collected on the floor in the vault, had a lead concentration of 525 µg/ft^2. Sample ILMTW2, which was collected on the floor in the storage area, at the firing line in the former indoor firing range (IFR), had a lead concentration of 74,400 µg/ft^2. Sample ILMTW3, which was collected on the floor in the storage area, midrange in the former IFR, had a lead concentration of 16,800 µg/ft^2. Sample ILMTW4, which was collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 590,000 µg/ft^2. Sample ILMTW5, which was collected on the shelf in room 27 supply and NBC, had a lead concentration of 2,050 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Mattoon Armory
Mattoon, Illinois
December 5, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILMTW1	Vault, on Floor		**525**

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILMTW2	Storage, Former IFR, at Firing Line, on Floor		**74,400**
ILMTW2	Storage, Former IFR, Midrange, on Floor		**16,800**
ILMTW4	Storage, Former IFR, at Bullet Trap, on Floor		**590,000**
ILMTW5	Room 27, Supply and NBC Room, on Shelf		**2,050**
ILMTW6	Field Blank	N/A	ND

Notes: 1) µg / 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^2 (RAC 2).

2. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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).

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).

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Mattoon, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 11496
DFOH Lab Nos.:	TM-14-65339 through TM-14-65344
Date Received:	12/09/13
Data Analyzed:	12/12/13 through 12/16/13
Date Issued:	12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMTW1	TM-14-65339	58	525
ILMTW2	TM-14-65340	8200	74400
ILMTW3	TM-14-65341	18400	16800
ILMTW4	TM-14-65342	65000	590000
ILMTW5	TM-14-65343	226	2050
ILMTW6**	TM-14-65344	<10	

Surface Wipe Sampling Criteria

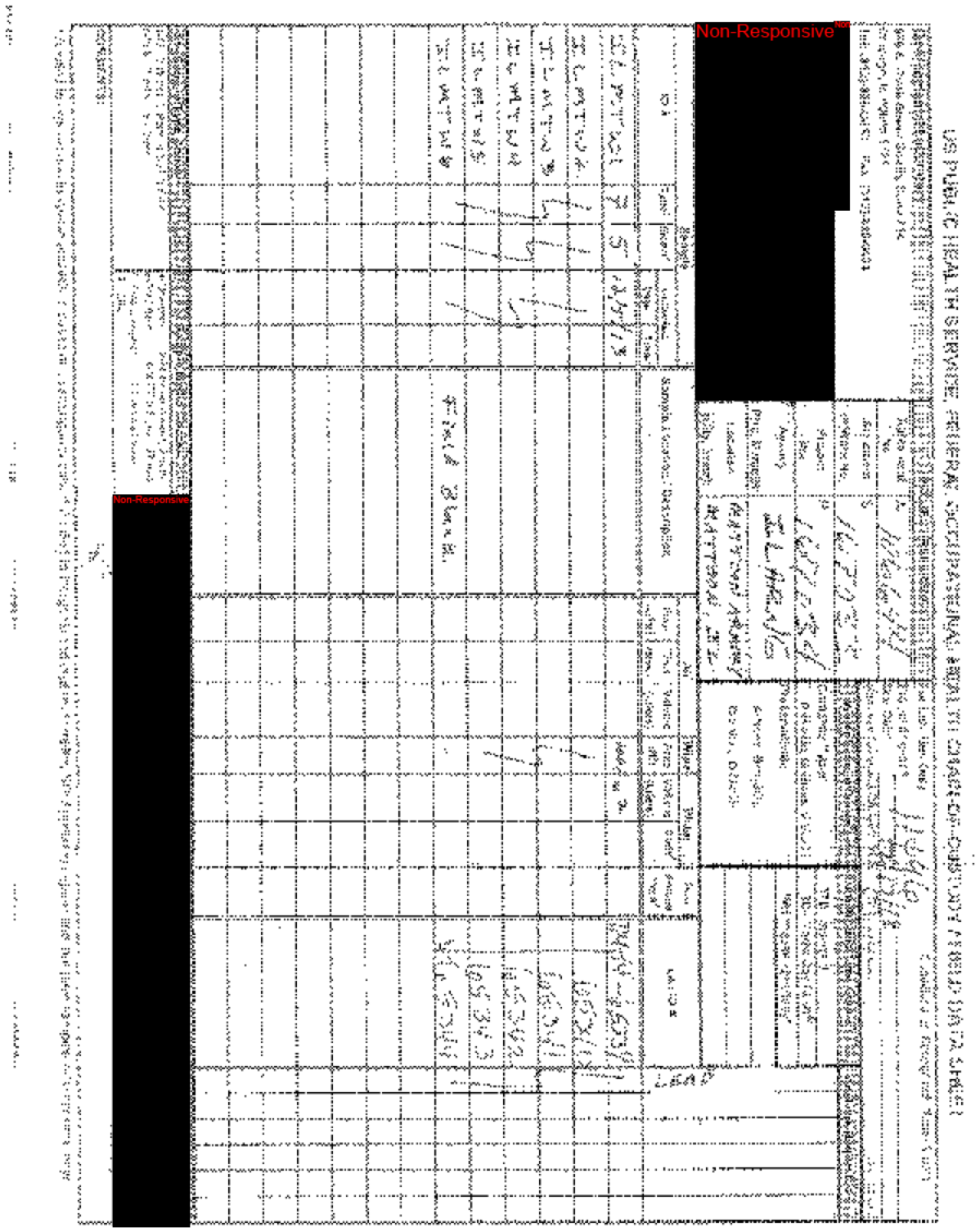
Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Fourteen spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Mattoon Armory
Mattoon, Illinois
December 5, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Foyer	23-31	30	Partially
Room 13, Office	104-140	50	Yes
Rooms 12 and 7, Office	Not Operable	50	No
Room 6, Office	97-99	50	Yes
Unisex Latrine	20-33	30	Partially
Room 4, Storage	54-96	30	Yes
Room 2, Office	94-107	50	Yes
Room 1, Office	51-55	50	Yes
Room 39, Classroom	83-93	50	Yes
Room 40, Classroom	Not Operable	50	No
Room 38, Classroom	77-113	50	Yes
Room 37, Classroom	70-100	50	Yes
Room 36, Office	81-121	50	Yes
Room 34, Janitor's Closet	28-33	30	Partially
Room 33, Mechanical Room	20-28	30	No
Kitchen	24-56	50	Partially
Room 41, Stage Latrine	63-73	30	Yes
Room 42, Stage Storage	28-31	30	Partially
Stage Fitness Area	33-34	50	No
Room 24, Storage Area	45-50	30	Yes
Room 28, Garage	12-31	30	Partially
Room 43, Mechanical Room	9-22	30	No
Room 27, Supply and NBC Room	33-60	30	Yes
Room 26, Supply	25-76	30	Partially
Room 25, Locker Room	1-63	30	Partially
Men's Latrine and Shower	14-43	30	Partially

Room 22, Office	108-115	50	Yes
Supply Room	31-50	30	Yes
Vault	17-104	30	Yes

Recommendations:

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

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

ARNG-CSG-P February 10, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Paris Armory, Paris, Illinois

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 December 6, 2013 at the Illinois Army National Guard Paris Armory, 1021 N. Main Street, Paris, Illinois. 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 Paris Armory was built in 1951 and it has about 31,234 square feet of floor space. The armory is the base of operations for the 1544th 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 Paris Armory had an indoor firing range (IFR) that was closed and converted to a weight 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 generally not available for rental for community activities, but some classrooms are used for drug prevention classes. 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 the floor in the storage area, midrange in the former IFR, had a lead concentration of 733 µg/ft^2. A sample collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 2,430 µg/ft^2. 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^2 (RAC 2).**

- **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 Paris Armory. Twenty-three 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

[redacted]

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

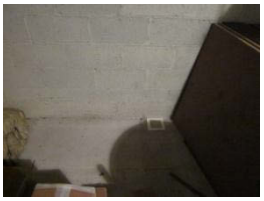
Wipe samples were collected from representative areas of the facility using Environmental Express Ghost™ Wipes and templates in accordance with the OSHA wipe sampling method (OSHA Technical Manual, Appendix II, 2-1). In addition, surface wipe samples were collected in the kitchen to assess migration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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Two of the surface wipe sample results exceeded the guideline for lead. Sample ILPAXW23, which was collected on the floor in the storage area, midrange in the former indoor firing range (IFR), had a lead concentration of 733 µg/ft^2. Sample ILPAXW24, which was collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 2,430 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Paris Armory
Paris, Illinois
December 6, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILPAXW21	Kitchen, on Oven		<91
ILPAXW22	Weight Room, Former IFR, at Firing Line, on Floor		147

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILPAXW23	Storage, Former IFR, Midrange, on Floor		**733**
ILPAXW24	Storage, Former IFR, at Bullet Trap, on Floor		**2,430**
ILPAXW25	Break Room, on Table		<91
ILPAXW26	Field Blank	N/A	ND

Notes: 1) µg / 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^2 (RAC 2).

2. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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).

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).

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Paris, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11500
DFOH Lab Nos.: TM-14-65363 through TM-14-65368
Date Received: 12/09/13
Data Analyzed: 12/13/13 through 12/16/13
Date Issued: 12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11500
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILPAXW21	TM-14-65363	<10	<91
ILPAXW22	TM-14-65364	16	147
ILPAXW23	TM-14-65365	81	733
ILPAXW24	TM-14-65366	268	2430
ILPAXW25	TM-14-65367	<10	<91
ILPAXW26**	TM-14-65368	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

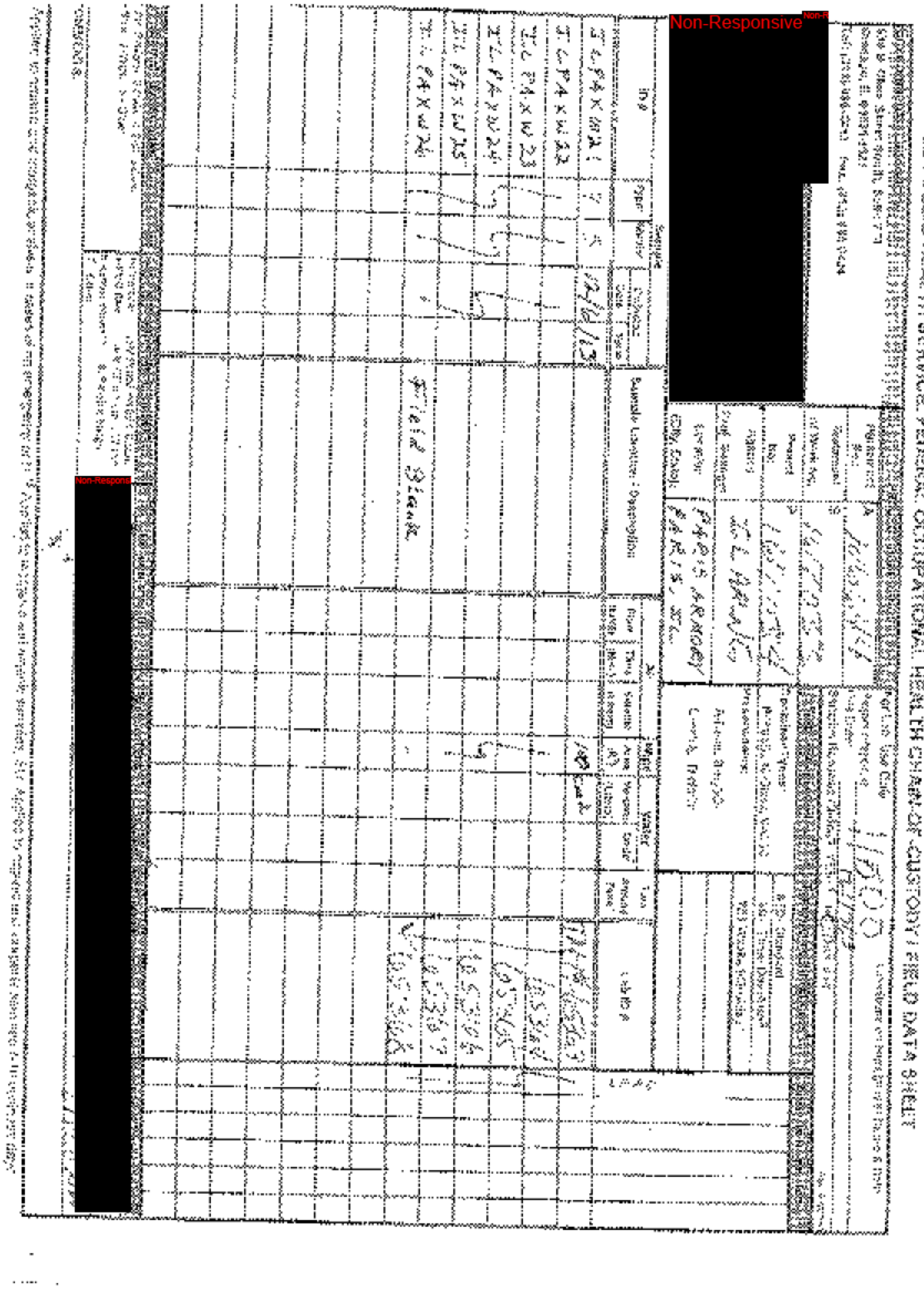
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC

Project 11500
Page 2 of 2



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Twenty-three spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Paris Armory
Paris, Illinois
December 6, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 43, Classroom	15-45	50	No
Drill Floor	18-23	50	No
Room 26, Stage	42-50	30	Yes
Room 32, Dining Hall	21-27	30	No
Kitchen	38-82	50	Partially
Wash Bay Storage	4-6	30	No
Room 27, Boiler Room	10-21	30	No
Room 28, Storage	3-4	30	No
Room 31, Storage, beneath Stage	5-48	30	Partially
Room 21, Classroom B	23-25	50	No
Room 18, Weight Room, Former IFR	1-15	50	No
Room 20, Storage, Former IFR	1-19	30	No
Room 16, Classroom A	29-34	50	No
Women's Latrine	10-14	30	No
Room 42, Men's Locker Room	7-16	30	No
Room 41, Men's Latrine	6-20	30	No
Room 40, Locker Room	8-14	30	No
Room 1, Foyer	7-10	30	No
Room 4, Women's Locker Room	20-32	30	Partially
Room 5, Office	32-41	50	No
Room 7, Office	29-34	50	No
Room 9, Office	14-17	50	No
Men's Latrine	34-45	30	Yes
Room 11, Office	36-38	50	No
Room 12, Janitor's Closet	15-18	30	No
Room 13, Office	59-69	50	Yes

Room 14, Break Room	50-52	30	Yes

Recommendations:

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

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

ARNG-CSG-P January 29, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Quincy Armory, Quincy, Illinois

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 December 3, 2013 at the Illinois Army National Guard Quincy Armory, Non-Responsive. 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 Quincy Armory was built in 1977, and it has about 28,860 square feet of floor space. The armory is the base of operations for the 1844th 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 Quincy Armory had an indoor firing range that was closed in the 1990's and converted to classrooms. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory is not available for rental for community activities. 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 1,280 μg/ft^2. The following actions are required:

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

- **Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items (RAC 3).**

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

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

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

The boiler room was posted with an asbestos warning sign. Water damaged pipe insulation was observed in the boiler room. The following actions are required:

- **Damaged suspected asbestos containing materials (ACM) in the boiler room should be repaired or removed and replaced (RAC 2).**

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. One of the surface wipe sample results exceeded the guideline for lead. Sample ILQUARW13, which was collected on the floor of the vault in front of the gun rack, had a lead concentration of 1,280 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Quincy Armory
Quincy, Illinois
December 3, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILQUARW11	Kitchen, on Counter		<91
ILQUARW12	Drill Floor, Center, on Floor		<91

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILQUARW13	Vault, in Front of Gun Rack, on Floor		**1,280**
ILQUARW14	Platoon Classroom, Former IFR, at Firing Line, on Floor		<91
ILQUARW15	Platoon Classroom, Former IFR, at Bullet Trap, on Floor		<91
ILQUARW16	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

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Quincy, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11493
DFOH Lab Nos.: TM-14-65326 through TM-14-65331
Date Received: 12/06/13
Data Analyzed: 12/11/13 through 12/12/13
Date Issued: 12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC

Project 11493
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILQUARW11	TM-14-65326	<10	<91
ILQUARW12	TM-14-65327	<10	<91
ILQUARW13	TM-14-65328	141	1280
ILQUARW14	TM-14-65329	<10	<91
ILQUARW15	TM-14-65330	<10	<91
ILQUARW16**	TM-14-65331	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

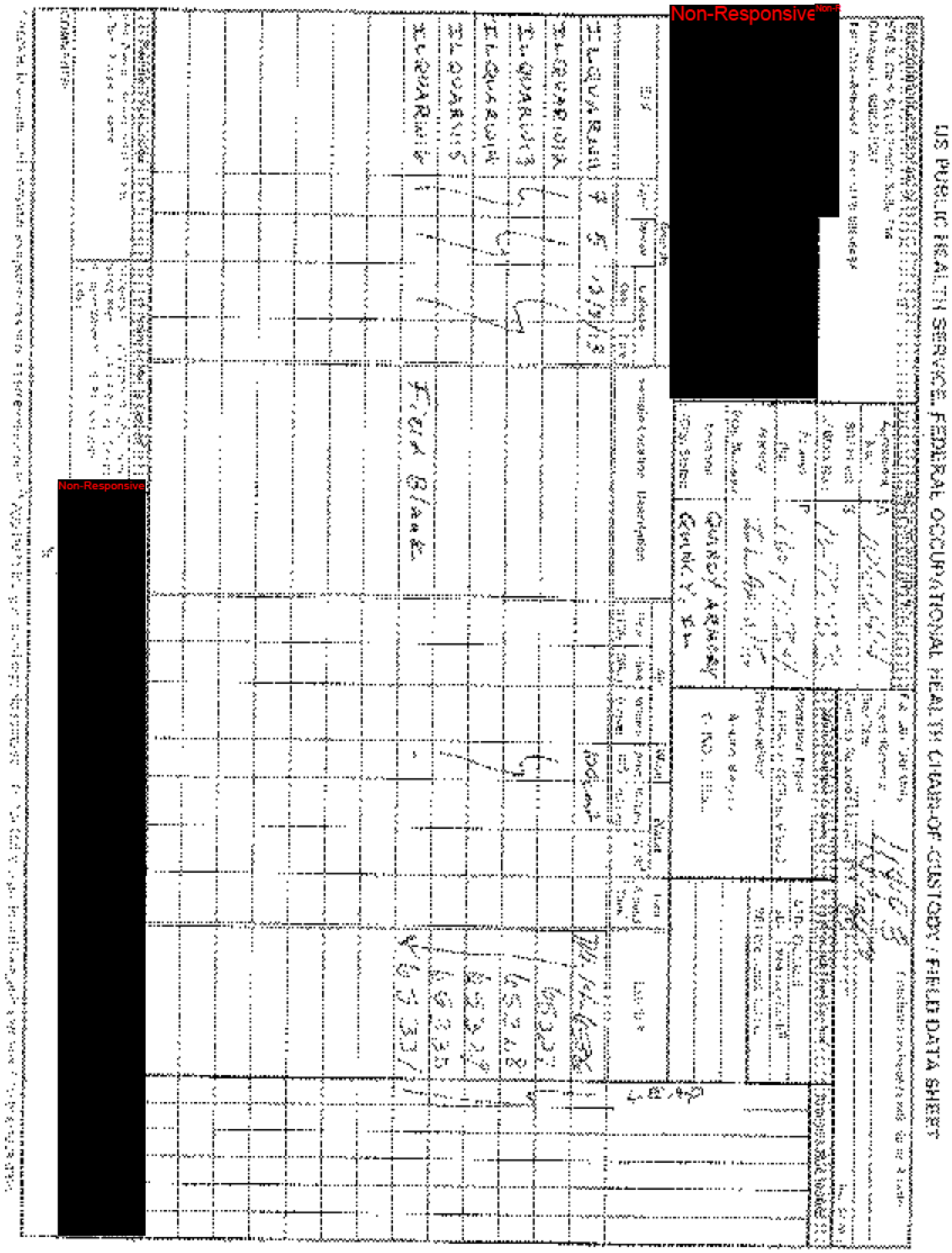
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC

Project 11493
Page 2 of 2



Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Ten spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Quincy Armory
Quincy, Illinois
December 3, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 15, Classroom	94-126	50	Yes
Room 2, Orderly	82-105	50	Yes
Room 2B, Commander's Office	130-152	50	Yes
Room 2C, Office	160-185	50	Yes
Room 14, Operations Office	31-58	50	Partially
Room 14A, Computer Lab	38-68	50	Partially
Men's Latrine	44-64	30	Yes
Platoon Office	71-77	50	Yes
Platoon Classroom	32-37	50	No
Drill Floor	28-32	50	No
Supply Room	15-22	30	No
Office	105-145	50	Yes
Vault	8-21	30	No
Kitchen	87-102	50	Yes
Room 5, Recruiting Office	74-87	50	Yes
Men's Locker Room	20-44	30	Partially
Room 4, Boiler Room	5-20	30	No
Room 12, Janitor's Closet	11-16	30	No
Women's Latrine	41-55	30	Yes
Women's Locker Room	3-35	30	Partially

Recommendations:

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

Appendix C
Suspected Asbestos Containing Materials

The boiler room was posted with an asbestos warning sign (Figure C-1). Water damaged pipe insulation was observed in the boiler room (Figure C-2). Damaged suspected asbestos containing materials (ACM) in the boiler room should be repaired or removed and replaced.

Figure C-1 Entrance to Boiler Room

Figure C-2 Damaged Suspected Asbestos in Boiler Room

Recommendations:

1. Damaged suspected asbestos containing materials in the boiler room should be repaired or removed and replaced (RAC 2).

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 Illinois

SUBJECT: Industrial Hygiene Survey at Rock Falls Armory, Rock Falls, Illinois

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 September 24, 2014 at the Illinois Army National Guard Rock Falls Armory, Non-Responsive. 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 Rock Falls Armory is the base of operations for the 1644th 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 Rock Falls Armory had an indoor firing range (IFR) that was closed in 2004 and converted to a weight room, class room, and janitor's closet. 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: high school basketball, Toys for Tots toy distribution, and family Christmas luncheons. 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 Rock Falls Armory. Five of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

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

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Rock Falls Armory
Rock Falls, Illinois
September 24, 2014

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILRFAW11	Vault, on floor		24
ILRFAW12	Library, former IFR, at firing line area on floor		<10

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILRFAW13	Classroom, former IFR, midrange on radiator		<10
ILRFAW14	Kitchen, on food prep table		<10
ILRFAW15	Drill floor, center on floor		<10
ILRFAW16	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

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Rock Falls, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 12185
DFOH Lab Nos.: TM-14-74055 through TM-14-74060
Date Received: 09/30/14
Data Analyzed: 10/14/14 – 10/16/14
Date Issued: 10/17/14

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

636 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILRFAW11	TM-14-74055	24	24
ILRFAW12	TM-14-74056	<10	<10
ILRFAW13	TM-14-74057	<10	<10
ILRFAW14	TM-14-74058	<10	<10
ILRFAW15	TM-14-74059	<10	<10
ILRFAW16**	TM-14-74060	<10	

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead – Flame AA	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 12185
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434
Non-Responsive

Contact Information
Non-Responsive

PROJECT REFERENCE
Agreement No.: A 106644
Statement of Work No.: S 180648
Project No: P 189649
Agency: ILARNG
Proj. Manager:
Location (City, State): Rock Falls Armory, Rock Falls, IL

For Lab Use Only
Project /Report #: 12185
Due Date: 10/8/14
Samples Received Chilled? YES / NO (circle one)
Conditions on Receipt with Name & Date
Rev. (07/2010)

Water Sample Codes[1]
Container Types:
P-Plastic, G-Glass, V-VOC
Preservatives:
A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes[4]
STD- Standard
3D- Three Day Rush[@]
WH Weekend/Holiday*

Analysis Requested
Lead

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft^2)	Water Volume (Liters)	Water Code[3]	Turn Around Time[4]	Lab ID #
ILRFAW11	7	5	9/24	14					1				TM-14-74055
12													74056
13													74057
14													74058
15									↓				74059
↓ 16	↓	↓	↓		Field blank				-				↓ 74060

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8 - Other

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

Relinquished By / Date & Time
Non-Responsive

Received By / Date & Time

COMMENTS: Samples are 1 square foot

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

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Five spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Rock Falls Armory
Rock Falls, Illinois
September 24, 2014

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Supply room	13-21	30	No
Supply room office	19-33	50	No
Vault	40-56	30	Yes
Library	43-48	50	No
Weight room	71-94	50	Yes
Classroom and storage, former IFR	58-86	50	Yes
Classroom 2	34-52	50	Partially
Drill floor	59-64	50	Yes
Kitchen	34-81	50	Partially
Classroom 1	65-76	50	Yes
Training NCO office	75-78	50	Yes
Office 5	82-86	50	Yes

Recommendations:

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

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

ARNG-CSG-P February 10, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Sullivan Armory, Sullivan, Illinois

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 December 5, 2013 at the Illinois Army National Guard Sullivan Armory, Non-Responsive. 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 Sullivan Armory was built in 1953 and it has about 31,374 square feet of floor space. The armory is the base of operations for HHQ 634th 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 Sullivan Armory had an indoor firing range (IFR) that was closed in 1987 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: elementary and high school basketball and the Girls on the Run program. 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. Four of the surface wipe sample results exceeded the guideline for lead. A sample collected on the floor in the storage area, at the firing line in the former IFR, had a lead concentration of 5,800 µg/ft^2. A sample collected on the floor in the storage area, midrange in the former IFR, had a lead concentration of 13,000 µg/ft^2. A sample collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 3,600 µg/ft^2. A sample collected on the floor in the vault had a lead concentration of 1,600 µg/ft^2. <u>The following actions are required:</u>

- **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^2 (RAC 2).**

- **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 Sullivan Armory. Twelve of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Four of the surface wipe sample results exceeded the guideline for lead. Sample ILSUW11, which was collected on the floor in the vault, had a lead concentration of 1,600 µg/ft^2. Sample ILSUW13, which was collected on the floor in the storage area, at the firing line in the former indoor firing range (IRF), had a lead concentration of 5,800 µg/ft^2. Sample ILSUW14, which was collected on the floor in the storage area, midrange in the former IFR, had a lead concentration of 13,000 µg/ft^2. Sample ILSUW15, which was collected on the floor in the storage area, at the bullet trap in the former IFR, had a lead concentration of 3,600 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Sullivan Armory
Sullivan, Illinois
December 5, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILSUW11	Vault, on Floor		**1,600**

Sample #	Location	Photo	Lead ($\mu g/ft^2$)
Surface Guideline			**200**
ILSUW12	Kitchen, on Counter		<91
ILSUW13	Storage, Former IFR, at Firing Line, on Floor		**5,800**
ILSUW14	Storage, Former IFR, Midrange, on Floor		**13,000**
ILSUW15	Storage, Former IFR, at Bullet Trap, on Floor		**3,600**
ILSUW16	Field Blank	N/A	ND

Notes: 1) µg / 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^2 (RAC 2).

2. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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).

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).

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Sullivan, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11499
DFOH Lab Nos.: TM-14-65357 through TM-14-65362
Date Received: 12/09/13
Data Analyzed: 12/13/13 through 12/16/13
Date Issued: 12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11499
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FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSUW11	TM-14-65357	170	1600
ILSUW12	TM-14-65358	<10	<91
ILSUW13	TM-14-65359	634	5800
ILSUW14	TM-14-65360	1440	13000
ILSUW15	TM-14-65361	390	3600
ILSUW16**	TM-14-65362	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11499
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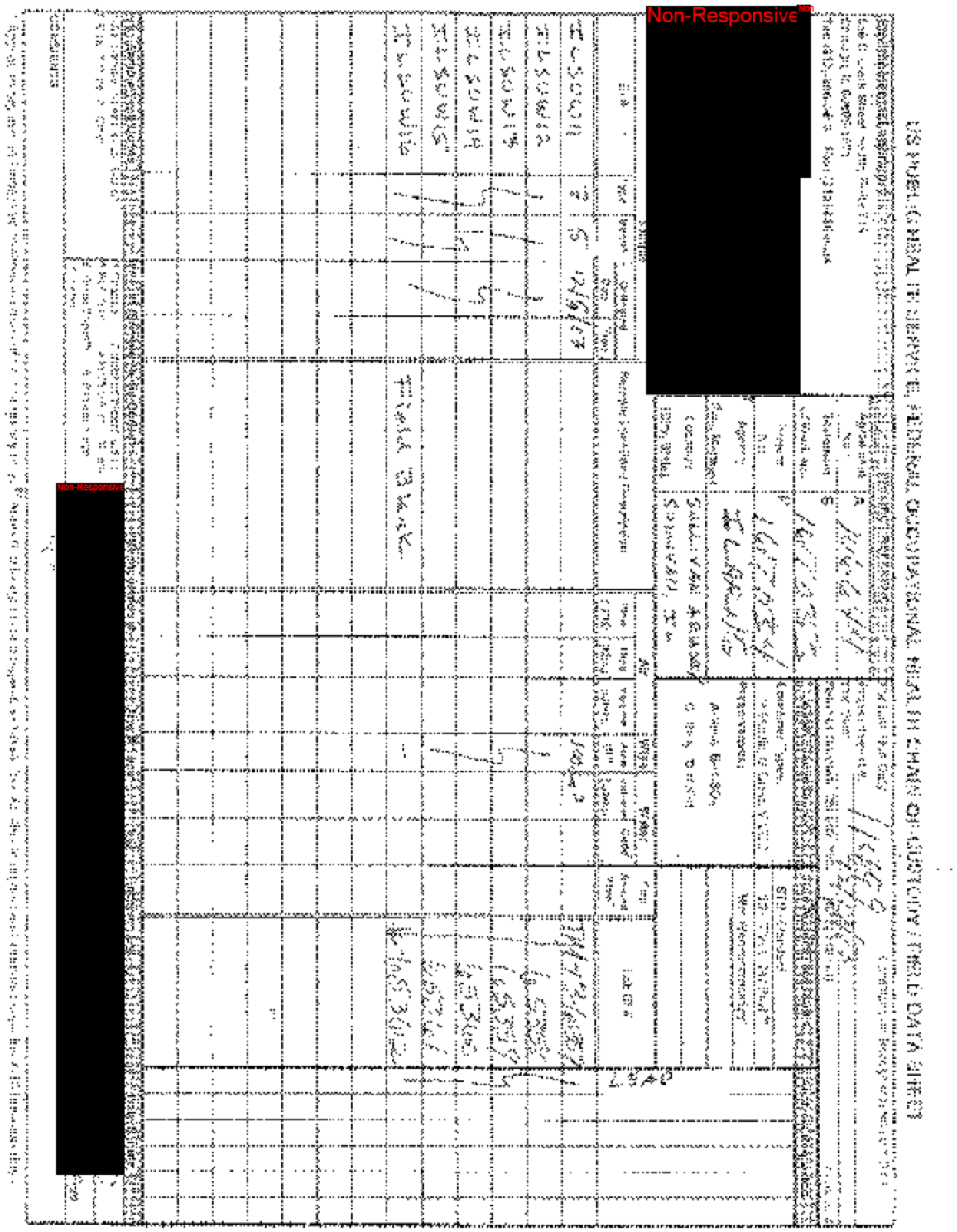

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Twelve spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Sullivan Armory
Sullivan, Illinois
December 5, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
1SG Office	57-69	50	Yes
Men's Latrine and Locker Room	56-81	30	Yes
Supply Room Area	43-46	30	Yes
Vault	32-36	30	Yes
Supply Office	56-62	30	Yes
Drill Floor	35-52	50	Partially
Maintenance Bay	6-17	50	No
Fitness Area	13-15	50	No
Shower	14-20	30	No
Basement Locker Room	42-89	30	Yes
Boiler Room	6-17	30	No
Storage, Former Coal Room	8-10	30	No
BN Classroom	29-32	50	No
Storage, Former IFR	8-22	30	No
Foyer	20-32	30	Partially
Room 15, SFC Office	84-105	50	Yes
Room 14, BN S1 Shop	50-82	50	Yes
Room 13, Office	58-63	50	Yes
Room 11, Office	73-85	50	Yes
Women's Latrine and Locker Room	48-75	30	Yes
Room 10, Office	60-95	50	Yes
Men's Latrine	44-94	30	Yes
Recruiting Office	60-68	50	Yes
Room 7, Office	65-70	50	Yes
Room 6, Office	64-68	50	Yes
Room 5, Mail Room	39-48	50	No

Room 4, Copy Room	42-56	50	Partially
Break Room	39-41	30	Yes
Room 1, Conference Room	54-63	50	Yes
Room 17, Orderly Room	28-35	50	No

Recommendations:

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

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

ARNG-CSG-P February 11, 2014

MEMORANDUM FOR: The Adjutant General for Illinois

SUBJECT: Industrial Hygiene Survey at Urbana Armory, Urbana, Illinois

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 December 6, 2013 at the Illinois Army National Guard Urbana Armory, Non-Responsive. The site point of contact was MSG Adams.

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 Urbana Armory was built in 1938 and renovated in 2012. The facility has about 86,562 square feet of floor space. The armory is the base of operations for the 33rd IBCT Combat Team, Headquarters Company HHC 33rd IBCT, and a Veterans Affairs (VA) office. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. The Urbana Armory had an indoor firing range (IFR) that 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 rental for community activities that include: Red Cross blood drives and VA job fairs. 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. Three 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 430 µg/ft^2. A sample collected on the floor in room 27 (storage area), at the firing line in the former IFR, had a lead concentration of 15,200 µg/ft^2. A sample collected on the floor in room 27 (storage area), at the bullet trap in the former IFR, had a lead concentration of 929 µg/ft^2. 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^2 (RAC 2).**

- **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 Urbana Armory. Forty-one of the areas surveyed did not meet minimum illumination requirements. The following actions are required:

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

For any further questions, please contact Non-Responsive

Non-Responsive

Regional Industrial Hygienist

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

Appendix A
Lead – Wipe Sampling

Surface Area Wipe Samples

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

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

The NGB Mid-West Regional IH Office has adopted the guidelines for metal dust published in NG Pam 420-15, *Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges* and the Department of Energy (DOE)/ Brookhaven National Laboratory (BNL) *Surface Wipe Sampling Procedure* (IH75190). Any results that exceed these guidelines, which are shown in Table A-1, are considered significant. Three of the surface wipe sample results exceeded the guideline for lead. Sample ILURW1, which was collected on the floor in the vault, had a lead concentration of 430 µg/ft^2. Sample ILURW2, which was collected on the floor in room 27 (storage area), at the firing line in the former indoor firing range (IFR), had a lead concentration of 15,200 µg/ft^2. Sample ILURW3, which was collected on the floor in room 27 (storage area), at the bullet trap in the former IFR, had a lead concentration of 929 µg/ft^2.

Table A-1
Surface Area Wipe Sampling Results for Lead
Illinois Army National Guard
Urbana Armory
Urbana, Illinois
December 6, 2013

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILURW1	Vault, on Floor		**430**

Sample #	Location	Photo	Lead (µg/ft^2)
Surface Guideline			**200**
ILURW2	Room 27, Storage, Former IFR, at Firing Line, on Floor		**15,200**
ILURW3	Room 27, Storage, Former IFR, at Bullet Trap, on Floor		**929**
ILURW4	Kitchen, on Counter		<91
ILURW5	Drill Floor, Center, on Floor		<91
ILURW6	Field Blank	N/A	ND

Notes: 1) µg/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/ft2 (RAC 2).

2. Clean the horizontal surfaces where lead may be present by using high-efficiency particulate air (HEPA) filter vacuums or wet methods (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).

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).

Laboratory Result Reports and Chain of Custody Sheets

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Urbana, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 11498
DFOH Lab Nos.:	TM-14-65351 through TM-14-65356
Date Received:	12/09/13
Data Analyzed:	12/13/13 through 12/16/13
Date Issued:	12/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILURW1	TM-14-65351	47	430
ILURW2	TM-14-65352	1670	15200
ILURW3	TM-14-65353	102	929
ILURW4	TM-14-65354	<10	<91
ILURW5	TM-14-65355	<10	<91
ILURW6**	TM-14-65356	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11498
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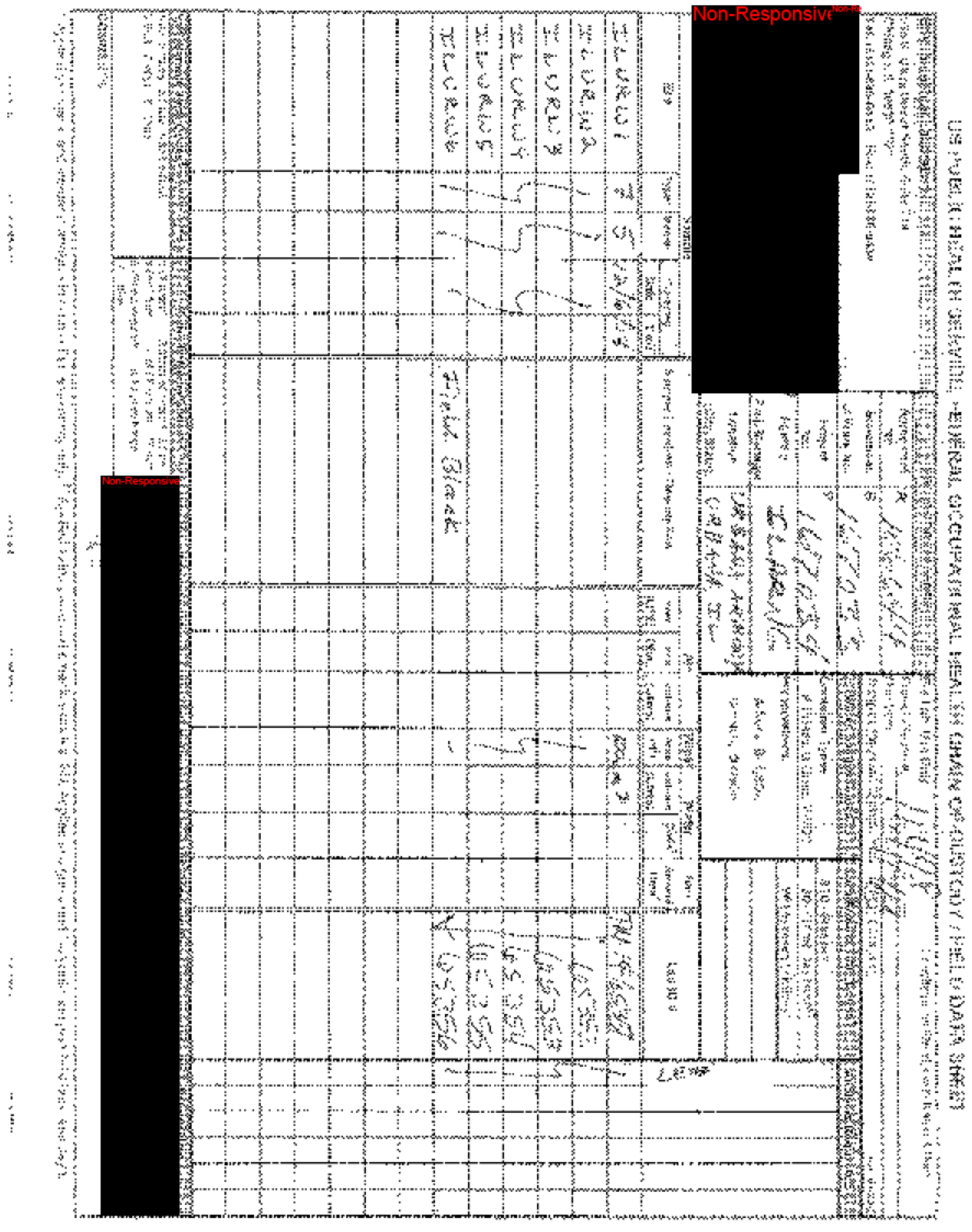

Appendix B
Lighting

Illumination levels were measured with an Extech Instruments Model 407026 Light Meter calibrated according to the manufacturer's specifications. The results were compared with the recommendations in the National Guard Bureau Facility Design Guides and the American National Standards Institute/Illuminating Engineering Society of North America RP-1 (Offices) and RP-7 (Industrial Facilities) guidelines. The results and the lighting criteria are contained in Table B-1. Forty-one spaces in the facility did not meet the minimum lighting level.

Table B-1
Lighting Measurements
Illinois Army National Guard
Urbana Armory
Urbana, Illinois
December 6, 2013

Locations	Measured Illumination (foot candles)	Required Illumination (foot candles)	Standard Met?
Room 214, Open Office Area	36-45	50	No
Room 213, Open Office Area	40-44	50	No
Room 213A, Office	37-51	50	Partially
Operations Conference Room	51-78	50	Yes
Room 215B, Office	33-42	50	No
Room 215A, Office	46-81	50	Partially
Room 216, Office	77-80	50	Yes
Room 217, Office	28-30	50	No
Room 218, Office	50-67	50	Yes
Men's Latrine, 2nd Floor	28-49	30	Partially
Room 210, Janitor's Closet	44-46	30	Yes
Women's Latrine, 2nd Floor	18-33	30	Partially
Room 205, Conference Room	10-35	50	No
Room 208, Office	39-41	50	No
Room 204, Office	59-63	50	Yes
Room 102, Office	49-71	50	Partially
Room 104, Office	20-36	50	No
Men's Latrine, 1st Floor	20-23	30	No
Men's Showers, 1st Floor	47-54	30	Yes
Men's Locker Room, 1st Floor	45-64	30	Yes
Room 117, Distributed Learning Lab	35-83	50	Partially
Room 027, Storage, Former IFR	15-20	30	No
Room 028, Storage	17-39	30	Partially
Mechanical Room	11-25	30	No
Mechanical Room	26-28	30	No
Wood Storage	10-44	30	Partially

Hallway	14-23	30	No
Boiler Room	19-40	30	Partially
Room 015, Classroom	51-57	50	Yes
Room 011, Classroom	27-30	50	No
Room 001, Fitness Room	58-65	50	Yes
Men's Latrine	7-56	30	Partially
Women's Latrine	38-67	30	Yes
Room 007, Office	51-83	50	Yes
Room 008, Office	34-42	50	No
Drill Floor	37-42	50	No
Room 156, Conference Room	35-39	50	No
Conference Room Partition	27-39	50	No
Kitchen	22-32	50	No
Room 149, Supply Office	51-71	50	Yes
Vault 2	27-37	30	Partially
Supply Room	2-28	30	No
Vault 1	20-26	30	No
Room 150, Locker Room	7-27	30	No
Room 143, Garage	10-28	30	No
Men's Latrine	91-100	30	Yes
Women's Latrine	15-40	30	Partially
Room 139, Storage	27-29	30	No
Room 131, Storage	16-20	30	No
Room 133, Storage	16-23	30	No
Room 134, Storage	16-21	30	No
Room 130, Storage	18-44	30	Partially
Room 224A, Office	36-40	50	No
Room 224B, Office	30-34	50	No
Office Common Area	62-65	50	Yes
Room 222, Locker Room	60-107	30	Yes

Recommendations:

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

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Paris Armory
1021 North Main Street
Paris, Illinois

Survey date: December 14, 2012

Performed by

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

February 14, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Paris Armory, located in Paris, Illinois. 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 Paris Armory was built in 1951, and has 31,234 square feet of floor space. The armory is the base of operations for the 1544th Transportation Company. 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.

The armory had an indoor firing range (IFR) that was closed about twenty years ago and converted to a weight room and storage area. Used targets are kept in the former IFR storage area. Site personnel reported that the armory is not rented out for community activities. The armory may be used for a family Christmas dinner party.

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. Three of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected on the floor in the former IFR (about mid-range) had a lead concentration of 814 ug/ft^2. A sample collected on the floor in the former IFR (at the bullet trap area) had a lead concentration of 595 ug/ft^2. A sample collected on the floor in the vault had a lead concentration of 6,818 ug/ft^2.

The armory should clean up the areas where lead contamination has been identified. Used targets should be removed from the former indoor firing range area. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

The 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.

A lighting survey was conducted in the offices and storage areas in the Paris Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Paris Armory, located in Paris, Illinois. 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 December 14, 2012.

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

III. Site Description

The Paris Armory was built in 1951, and has 31,234 square feet of floor space. The armory is the base of operations for the 1544th Transportation Company. 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.

The Paris Armory had an indoor firing range (IFR) that was closed about twenty years ago and converted to a weight room and storage area. Used targets are kept in the former IFR storage area. 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 rented out for community activities. The armory may be used for a family Christmas dinner party.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Paris Armory

V. Findings, Discussion, and Recommendations

The armory is the base of operations for the 1544th Transportation Company. 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. The Paris Armory had a firing range that was closed about twenty years ago and converted to a weight room and storage area. Used targets are kept in the former IFR storage area. 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.

Three of the surface wipe sample results exceeded the NGB criteria. Sample ILPAXW12, which was collected on the floor in the former IFR (about mid-range) had a lead concentration of 814 ug/ft^2. Sample ILPAXW13, which was collected on the floor in the former IFR (at the bullet trap area) had a lead concentration of 595 ug/ft^2. Sample ILPAXW14, which was collected on the floor in the vault had a lead concentration of 6,818 ug/ft^2.

The Paris 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. The armory should clean up the areas where lead contamination has been identified. Used targets (Figures 3 and 4) should be removed from the former indoor firing range area. 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
Illinois Army National Guard
Paris Armory
Paris, Illinois
December 14, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Former IFR, Firing Line, on Floor	ILPAXW11	<91
Former IFR, Mid-Range, on Floor	ILPAXW12	**814**
Former IFR, Bullet Trap, on Floor	ILPAXW13	**595**
Vault, on Floor	ILPAXW14	**6,818**
Kitchen, on Prep Table	ILPAXW15	<91
Field Blank	ILPAXW16	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^2	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. Clean up the areas where lead contamination has been identified. Used targets should be removed from the former indoor firing range area. (**RAC 2**)

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 ILPAXW11

Sample ILPAXW12

Sample ILPAXW13

Sample ILPAXW14

Sample ILPAXW15

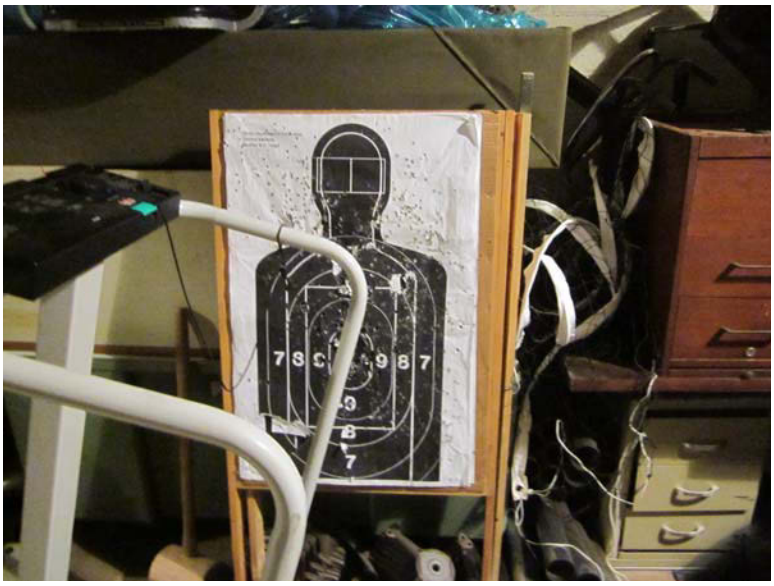

Figure 3 – Targets Stored in Former IFR Storage Area

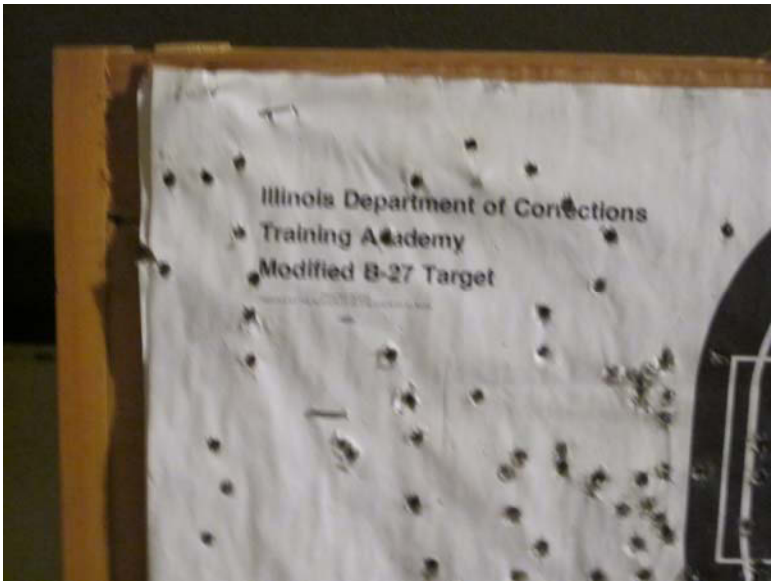

Figure 4 – Targets Stored in Former IFR Storage Area

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Paris Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Paris Armory
Paris, Illinois
December 14, 2012

Location	Illumination (foot candles)
Supply Office	26-33
Supply Room	6-8
Conference Room	4-18
Locker Room	6-12
Latrine	9-16
Drill Floor	19-42
Weight Room	11-22
Break Room	16-21
Basement Storage Room	16-32
Dining Room	22-58
Kitchen	27-44

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Paris Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Paris, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10857
DFOH Lab Nos.:	TM-13-58904 through TM-13-58909
Date Received:	12/20/12
Data Analyzed:	12/21/12 - 12/27/12
Date Issued:	01/03/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10857
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILPAXW11	TM-13-58904	<10	<91
ILPAXW12	TM-13-58905	90	814
ILPAXW13	TM-13-58906	66	595
ILPAXW14	TM-13-58907	750	6818
ILPAXW15	TM-13-58908	<10	<91
ILPAXW16**	TM-13-58909	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10857
Page 2 of 2

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

Non-Responsive

Non-Responsive

Non-Responsive

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
East St. Louis Armory
2931 State Street
East St. Louis, Illinois

Survey date: November 5, 2010

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

January 20, 2011

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, East St. Louis Armory, located in East St. Louis, Illinois. 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 East St. Louis Armory is the base of operations for the 1344th Transportation Company Regional RSP Program. 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. The East St. Louis Armory had an indoor firing range (IFR) that was closed in 1992. The IFR was equipped with a bullet trap and firing range ventilation system. 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 for voting and a Lincoln's challenge youth group.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. A sample collected on the bullet trap in the firing range had a lead concentration of 360,000 ug/ft^2 and a chromium concentration of 510 ug/ft^2. A sample collected in the firing range in the center of the room had a lead concentration of 480 ug/ft^2. A sample collected in vault two on the floor had a lead concentration of 420 ug/ft^2. The East St. Louis 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 East St. Louis 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. A sample collected on the bullet trap in the firing range had a lead concentration of 360,000 ug/ft^2 and a chromium concentration of 510 ug/ft^2. A sample collected in the firing range in the center of the room had a lead concentration of 480 ug/ft^2. A sample collected in vault two on the floor had a lead concentration of 420 ug/ft^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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the East St. Louis Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, East St. Louis Armory, located in East St. Louis, Illinois. 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 November 5, 2010.

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.

IV. Site Description

The East St. Louis Armory was built in 1952. The facility has 45,539 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The drill floor has a concrete floor, concrete block walls that are about twenty two feet high, and metal columns and beams that support a gabled roof that is about thirty two feet high in the center. The office and classroom areas have tile or carpet floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer.

The East St. Louis Armory is the base of operations for the 1344th Transportation Company Regional RSP Program. 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. The East St. Louis Armory had an indoor firing range (IFR) that was closed in 1992. The IFR was equipped with a bullet trap and firing range ventilation system. 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 for voting and a Lincoln's challenge youth group.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – East St. Louis Armory

Figure 2 – IFR in East St. Louis Armory

VI. Findings, Discussion, and Recommendations

The East St. Louis Armory is the base of operations for the 1344th Transportation Company Regional RSP Program. Site personnel reported that no vehicle maintenance is performed at the armory. The East St. Louis Armory had an IFR that was closed in 1992. The IFR was equipped with a bullet trap and firing range ventilation system. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. Sample ILESXW1 which was collected in the firing range on the bullet trap had a lead concentration of 360,000 ug/ft^2 and a chromium concentration of 510 ug/ft^2. Sample ILESXW2 which was collected in the firing range in the center of the room had a lead concentration of 480 ug/ft^2. Sample ILESXW3 which was collected in vault two on the floor had a lead concentration of 420 ug/ft^2. The East St. Louis 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
East St. Louis Armory
East St. Louis, Illinois
November 5, 2010

Analyte	ILESXW1 (ug/ft^2) Firing Range on Bullet Trap	ILESXW2 (ug/ft^2) Firing Range - Floor in Center of Room	ILESXW3 (ug/ft^2) Vault 2 on Floor
Lead	**360,000**	**480**	**420**
Cadmium	22	<9.1	75
Chromium	**510**	<91	<91

Analyte	ILESXW4 (ug/ft^2) Drill Floor – Center of Room on Floor	ILESXW5 (ug/ft^2) Dining Room on Table	ILESXW6 (ug/ft^2) Field Blank
Lead	<91	95	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
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 2**)

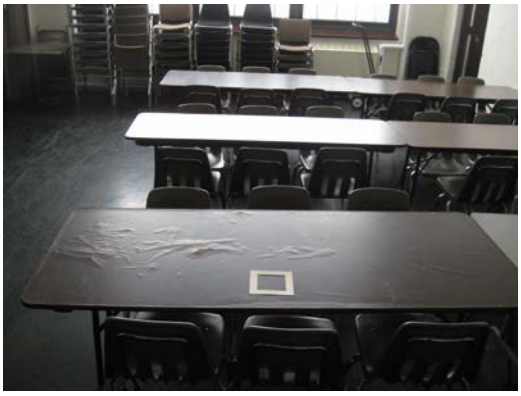
Figure 3 – Wipe Sample Locations (below)


ILESXW1


ILESXW2


ILESXW3


ILESXW4



ILESXW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the East St. Louis Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
East St. Louis Armory
East St. Louis, Illinois
November 5, 2010

Location	Illumination (foot candles)
Orderly Room	57
Commanding Officer	57
Room 15	61
Room 16	41
Room 17	35
Room 18	101
Room 19	34
Men's Latrine	38
Room 71 Copy Room	91
Room 64	31
Room 55	58
Drill Floor	15
Room 39 – Classroom	30
Basement Storage	11
Basement Boiler Room	6
Range Room (Closed IFR)	5
Kitchen	28-44
Dining Room	33
Supply Area	46
Vault 2	18
Vault 1	8
Room 23 (Supply Room)	8

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, 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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

East St. Louis Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: E. St, Louis, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9814
DFOH Lab Nos.:	TM-11-48202 through TM-11-48207
Date Received:	11/22/10
Data Analyzed:	11/30/10
Date Issued:	12/02/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILESXW1	TM-11-48202	4000	360000
ILESXW2	TM-11-48203	52	480
ILESXW3	TM-11-48204	46	420
ILESXW4	TM-11-48205	<10	<91
ILESXW5	TM-11-48206	11	95
ILESXW6	TM-11-48207		None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILESXW1	TM-11-48202	2.4	22
ILESXW2	TM-11-48203	<1.0	<9.1
ILESXW3	TM-11-48204	8.2	75
ILESXW4	TM-11-48205	<1.0	<9.1
ILESXW5	TM-11-48206	<1.0	<9.1
ILESXW6	TM-11-48207		None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILESXW1	TM-11-48202	57	510
ILESXW2	TM-11-48203	<10	<91
ILESXW3	TM-11-48204	<10	<91
ILESXW4	TM-11-48205	<10	<91
ILESXW5	TM-11-48206	<10	<91
ILESXW6	TM-11-48207		None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

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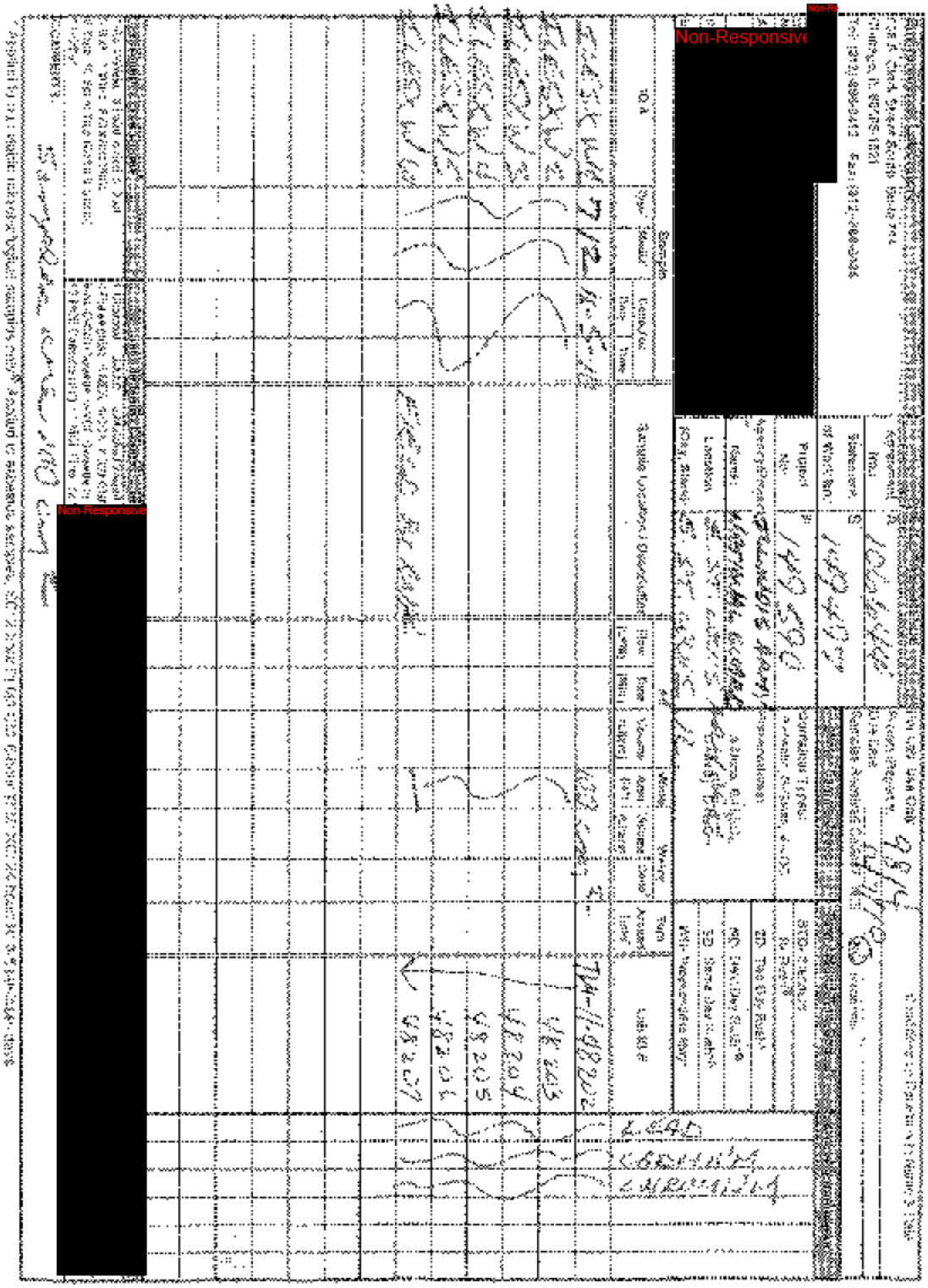
Project 9814
Page 2 of 2



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Carbondale Armory
900 West Sycamore Street
Carbondale, Illinois

Survey date: November 2, 2010

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

January 3, 2011

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Carbondale Armory, located in Carbondale, Illinois. 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 Carbondale Armory was built in 1938. The facility has 32,499 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The Carbondale Armory is the base of operations for C Company; 33rd Brigade Special Troops Battalion (BSTB). 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. The Carbondale Armory had a firing range that was closed in 1997 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 may include: basketball practice; the local park district father and daughter dance; and soccer practice.

Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Four of the surface wipe sample results exceeded the above criteria. Sample ILCAXW2 which was collected in the drill floor area, on an overhead space heater twelve feet above the floor, had a lead concentration of 530 ug/ft^2. Sample ILCAXW3 which was collected in the basement, on the floor at the bullet tray, had a lead concentration of 270,000 ug/ft^2. Sample ILCAXW4 which was collected in the basement, on the floor of the steam tunnel, had a lead concentration of 8,500 ug/ft^2. Sample ILCAXW5 which was collected in the basement, on a locker in the center of the room, had a lead concentration of 700 ug/ft^2. The Carbondale 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.

Site personnel reported concerns regarding water damage and potential mold growth in room 108 and room 110. Water damage to ceilings, walls and floors was observed in both of these areas. The source of the water leaks should be identified and repaired. After the water leaks have been repaired, mold monitoring should be performed and the water damaged areas should be repaired.

A lighting survey was conducted in the offices and storage areas in the Carbondale Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Four of the surface wipe sample results exceeded the above criteria. Sample ILCAXW2 which was collected in the drill floor area, on an overhead space heater twelve feet above the floor, had a lead concentration of 530 ug/ft^2. Sample ILCAXW3 which was collected in the basement, on the floor at the bullet tray, had a lead concentration of 270,000 ug/ft^2. Sample ILCAXW4 which was collected in the basement, on the floor of the steam tunnel, had a lead concentration of 8,500 ug/ft^2. Sample ILCAXW5 which was collected in the basement, on a locker in the center of the room, had a lead concentration of 700 ug/ft^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. 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.	4 4 2
Water Damage/Lighting		
Site personnel reported concerns regarding water damage and potential mold growth in room 108 and room 110. Water damage to ceilings, walls and floors was observed in both of these areas. A lighting survey was conducted in the offices and storage areas in the Carbondale Armory. Most of the areas surveyed did not meet minimum illumination requirements.	The source of the water leaks should be identified and repaired. After the water leaks have been repaired, mold monitoring should be performed and the water damaged areas should be repaired. Illumination levels should be improved in some office and storage areas.	2 2 4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Carbondale Armory, located in Carbondale, Illinois. 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 November 2, 2010.

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.

IV. Site Description

The Carbondale Armory was built in 1938. The facility has 32,499 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, concrete walls and a sloping concrete roof. The office and classroom areas have tile or carpet floors, concrete walls and suspended ceilings. The exterior of the building is concrete.

The Carbondale Armory is the base of operations for C Company; 33rd Brigade Special Troops Battalion (BSTB). 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. The Carbondale Armory had a firing range that was closed in 1997 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 may include: basketball practice for Trinity School (K-8); the local park district father and daughter dance; and soccer practice.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Carbondale Armory

VI. Findings, Discussion, and Recommendations

The Carbondale Armory is the base of operations for C Company; 33rd Brigade Special Troops Battalion (BSTB). Site personnel reported that no vehicle maintenance is performed at the armory. The Carbondale Armory had a firing range that was closed in 1997 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.

Surface Wipe Samples

Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). The results are contained in Table 1. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Four of the surface wipe sample results exceeded the above criteria. Sample ILCAXW2 which was collected in the drill floor area, on an overhead space heater twelve feet above the floor, had a lead concentration of 530 ug/ft^2. Sample ILCAXW3 which was collected in the basement, on the floor at the bullet tray, had a lead concentration of 270,000 ug/ft^2. Sample ILCAXW4 which was collected in the basement, on the floor of the steam tunnel, had a lead concentration of 8,500 ug/ft^2. Sample ILCAXW5 which was collected in the basement, on a locker in the center of the room, had a lead concentration of 700 ug/ft^2.

The Carbondale 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Carbondale Armory
Carbondale, Illinois
November 2, 2010

Analyte	ILCAXW1 (ug/ft^2) Vault - on Armorer's Workbench	ILCAXW2 (ug/ft^2) Drill Floor - on Overhead Space Heater, 12' Above Floor	ILCAXW3 (ug/ft^2) Basement – Closed IFR – on Floor at Bullet Tray
Lead	26	**530**	**270,000**
Cadmium	2.4	14	20
Chromium	14	97	18

Analyte	ILCAXW4 (ug/ft^2) Basement – Closed IFR – on Floor of Steam Tunnel	ILCAXW5 (ug/ft^2) Basement – Closed IFR – on Locker, Center of Room	ILCAXW6 (ug/ft^2) Room 110 Classroom - on Desktop
Lead	**8,500**	**700**	11
Cadmium	21	51	<1.0
Chromium	50	40	<10

Analyte	ILCAXW7 (ug/ft^2) Room 107 Office - on Desktop	ILCAXW8 (ug/ft^2) Kitchen - on Countertop	ILCAXW9 (ug/ft^2) Drill Floor - on Stage Floor
Lead	<10	<10	38
Cadmium	<1.0	<1.0	1.3
Chromium	<10	13	<10

Analyte	ILCAXW10 (ug/ft^2) Drill Floor – on Floor in SW Corner	ILCAXW11 (ug/ft^2) Field Blank
Lead	<10	ND
Cadmium	<1.0	<9.1
Chromium	<10	<91

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

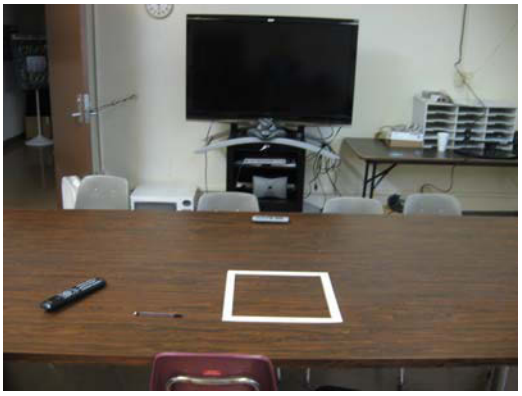
ILCAXW1

ILCAXW2

ILCAXW3

ILCAXW4

ILCAXW5



ILCAXW6

ILCAXW7

ILCAXW8

ILCAXW9

ILCAXW10

Water Damage

Site personnel reported concerns regarding water damage and potential mold growth in room 108 and room 110. Water damage to ceilings, walls and floors was observed in both of these areas (Figures 3 and 4). The source of the water leaks should be identified and repaired. After the water leaks have been repaired, mold monitoring should be performed and the water damaged areas should be repaired.

Recommendations:

1. The source of the water leaks in room 108 and room 110 should be identified and repaired. (**RAC 2**)

2. After the water leaks have been repaired, mold monitoring should be performed and the water damaged areas should be repaired. (**RAC 2**)

Figure 3 – Water Damage in Room 110

Figure 4 – Water Damage in Room 108

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Carbondale Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Carbondale Armory
Carbondale, Illinois
November 2, 2010

Location	Illumination (foot candles)
Room 104 – Administrative Office	56
Room 102 – Commander's Office	36
Room 100	30
Room 107	46
Room 108	51
Classroom 1	44
Locker Room – Basement	20
Boiler Room – Basement	9
Recruiter Office	52
Men's Locker Room	27
Men's Latrine	19
Physical Fitness/Locker Room	7
Kitchen	42
Janitorial Area	11
Storage Area	3
Drill Floor	43
Women's Latrine	8
Men's Latrine #2	26
Women's Latrine #2	46
Supply Room	15
Supply Storage	9
Supply Storage #2	11
Vault	15

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, 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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Carbondale Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 144 inches squared (in^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Carbondale, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9816
DFOH Lab Nos.:	TM-11-48219 through TM-11-48229
Date Received:	11/22/10
Data Analyzed:	11/30/10
Date Issued:	12/02/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAXW1	TM-11-48219	26	26
ILCAXW2	TM-11-48220	530	530
ILCAXW3	TM-11-48221	270000	270000
ILCAXW4	TM-11-48222	8500	8500
ILCAXW5	TM-11-48223	700	700
ILCAXW6	TM-11-48224	11	11
ILCAXW7	TM-11-48225	<10	<10
ILCAXW1	TM-11-48226	<10	<10
ILCAXW9	TM-11-48227	38	38
ILCAXW10	TM-11-48228	<10	<10
ILCAXW11	TM-11-48229		None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAXW1	TM-11-48219	2.4	2.4
ILCAXW2	TM-11-48220	14	14
ILCAXW3	TM-11-48221	20	20
ILCAXW4	TM-11-48222	21	21
ILCAXW5	TM-11-48223	51	51
ILCAXW6	TM-11-48224	<1.0	<1.0
ILCAXW7	TM-11-48225	<1.0	<1.0
ILCAXW1	TM-11-48226	<1.0	<1.0
ILCAXW9	TM-11-48227	1.3	1.3
ILCAXW10	TM-11-48228	<1.0	<1.0
ILCAXW11	TM-11-48229		None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAXW1	TM-11-48219	14	14
ILCAXW2	TM-11-48220	97	97
ILCAXW3	TM-11-48221	18	18
ILCAXW4	TM-11-48222	50	50
ILCAXW5	TM-11-48223	40	40
ILCAXW6	TM-11-48224	<10	<10
ILCAXW7	TM-11-48225	<10	<10
ILCAXW1	TM-11-48226	13	13
ILCAXW9	TM-11-48227	<10	<10
ILCAXW10	TM-11-48228	<10	<10
ILCAXW11	TM-11-48229		None Detected

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9816
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 9816
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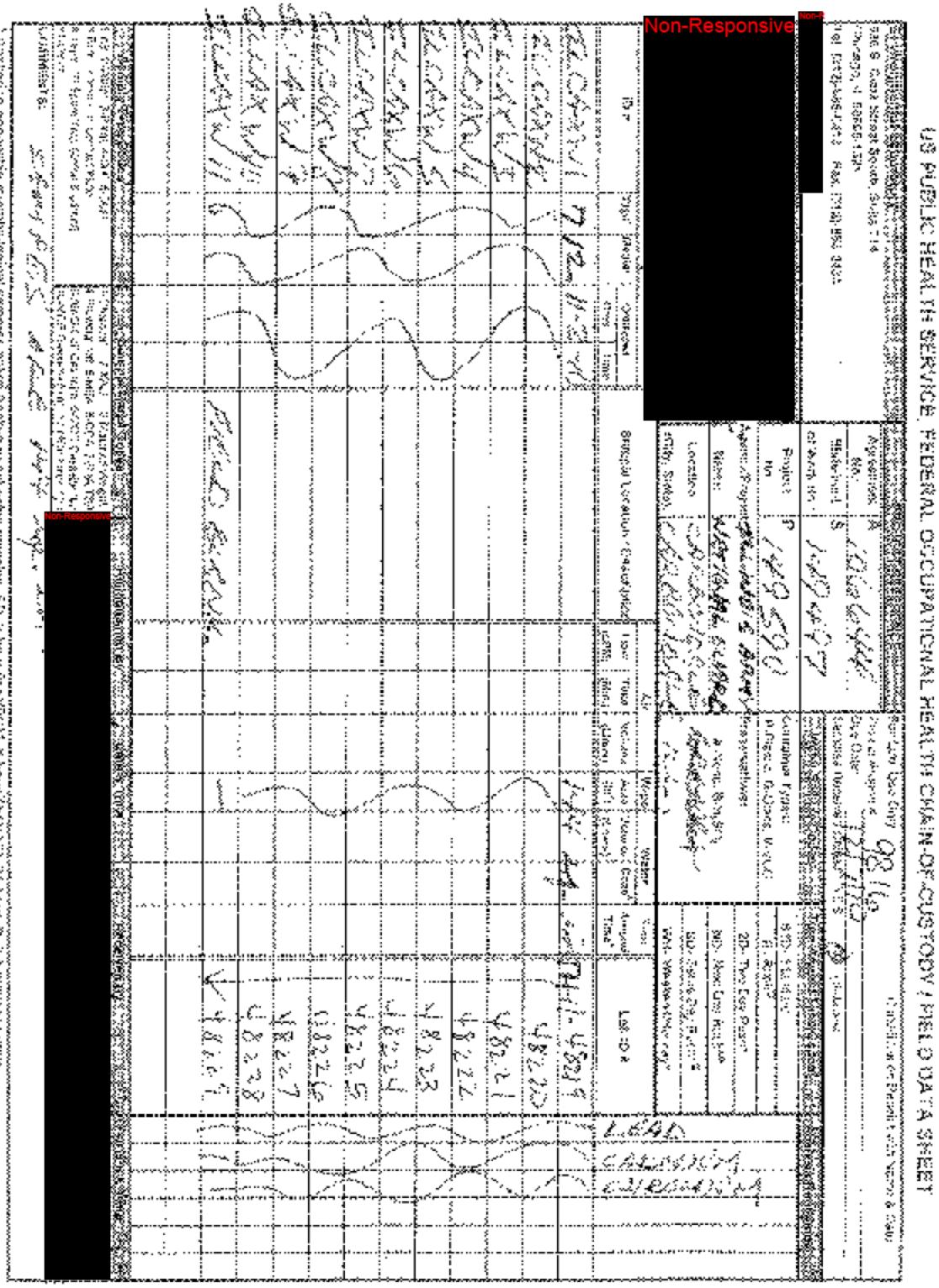

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Carbondale Armory
3702 New Era Road
Carbondale, Illinois

Survey date: December 10, 2012

Performed by

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

January 30, 2013

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Carbondale Armory, located in Carbondale, Illinois. 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 Carbondale Armory has two buildings, an armory and a separate vehicle maintenance building. The facility was built in 2010, and has 53,702 square feet of floor space. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the vehicle maintenance building is primarily used for vehicle and equipment storage, but has the potential to be used to service Humvees and tractor trailers. No vehicle maintenance was performed on the day of the survey. The Carbondale Armory does not have a firing range. Weapons may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. Site personnel reported that the armory is not used for community activities.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). One of the surface wipe sample results exceeded the NGB surface wipe sampling criteria for metals. A sample collected on the Lincoln welder in the maintenance bay had a cadmium concentration of 42 ug/ft^2. The Carbondale 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.

Carbon monoxide is an odorless, colorless toxic gas that is a product of incomplete combustion. Maintenance activities may require personnel to run engines while they are in the vehicle maintenance building. During the winter months, maintenance may be performed with the bay doors closed. The vehicle maintenance building was not equipped with carbon monoxide gas detectors. If maintenance activities require personnel to test engines while they are idling in the maintenance bays, carbon monoxide monitors should be installed in the vehicle maintenance building.

No vehicle maintenance was scheduled or performed on the day of the survey. Personal exposure monitoring for potential airborne contaminants and noise should be scheduled and conducted when vehicle maintenance is performed in the maintenance bays.

A lighting survey was conducted in the offices, support and storage areas in the Carbondale Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Carbondale Armory, located in Carbondale, Illinois. 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 December 10, 2012.

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

III. Site Description

The Carbondale Armory has two buildings, an armory and a separate vehicle maintenance building. The facility was built in 2010, and has 53,702 square feet of floor space. The Carbondale Armory is the base of operations for Detachment 1, 1344th Transportation Company; the 347th Replacement Battalion; the 825th Replacement Battalion; and Company C, 33rd Brigade Special Troops Battalion.

During the week, most of the activities at the armory involve administrative work. Site personnel reported that the vehicle maintenance building is primarily used for vehicle and equipment storage, but has the potential to be used to service Humvees and tractor trailers. No vehicle maintenance was performed on the day of the survey. The vehicle maintenance building is equipped with a tailpipe local exhaust ventilation system.

The Carbondale Armory does not have a firing range. Weapons may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. Site personnel reported that the armory is not used for community activities.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination; an evaluation of the tailpipe ventilation system; and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Carbondale Armory

Figure 2 – Carbondale Armory - Vehicle Maintenance Building

V. Findings, Discussion, and Recommendations

The Carbondale Armory is the base of operations for Detachment 1, 1344th Transportation Company; the 347th Replacement Battalion; the 825th Replacement Battalion; and Company C, 33rd Brigade Special Troops Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the vehicle maintenance building is primarily used for vehicle and equipment storage, but has the potential to be used to service Humvees and 916 tractor trailers. No vehicle maintenance was performed on the day of the survey.

The Carbondale Armory does not have a firing range. Weapons may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. Site personnel reported that the armory is not used for community activities.

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). The results are contained in Table 1. Wipe sample locations are identified in Figure 3. The NGB surface wipe sampling criteria for metals are contained in Table 2.

One of the surface wipe sample results exceeded the NGB criteria. Sample ILCAW14 which was collected on the Lincoln welder in the maintenance bay had a cadmium concentration of 42 ug/ft^2. The Carbondale 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
Illinois Army National Guard
Carbondale Armory
Carbondale, Illinois
December 10, 2012

Sample Number and Location	Lead (ug/ft^2)	Cadmium (ug/ft^2)	Chromium (ug/ft^2)
ILCAW11 - Break Room, on Counter Top	<91	<9.1	<91
ILCAW12 - Drill Floor, on Floor in Center	<91	<9.1	<91
ILCAW13 - Kitchen, on Counter Top	<91	<9.1	<91
ILCAW14 - Maintenance Bay, on Lincoln Welder	<91	**42**	<91
ILCAW15 - Room 158, in Front of Vault on Floor	<91	<9.1	<91
ILCAW16 - Field Blank	ND	ND	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 Metals

Metal	Acceptable Surface Level ug/ft^2	Basis for Criteria
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium 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

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 3 – Wipe Sample Locations (below)

Sample ILCAW11


Sample ILCAW12


Sample ILCAW13

Sample ILCAW14


Sample ILCAW15

Ventilation Systems

Carbon Monoxide Detection Systems

Carbon monoxide is an odorless, colorless toxic gas that is a product of incomplete combustion. Maintenance activities may require personnel to run engines while they are in the vehicle

maintenance building. During the winter months, maintenance may be performed with the bay doors closed. The vehicle maintenance building was not equipped with carbon monoxide gas detectors. If maintenance activities require personnel to test engines while they are idling in the maintenance bays, carbon monoxide monitors should be installed in the vehicle maintenance building.

Tailpipe Local Exhaust Ventilation (LEV) Systems

The vehicle maintenance building is equipped with two tailpipe LEV systems. The shop has the potential to be used to service Humvees and tractor trailers. The tailpipe LEV systems had eight inch diameter flexible exhaust ducts.

Tailpipe local exhaust ventilation systems (Figure 4) in maintenance bays were tested. The results are contained in Table 3. The NGB ventilation criteria for maintenance shops are contained in Table 4. Both of the tailpipe exhaust ventilation systems met the NGB ventilation criteria for maintenance shops that service vehicles with diesel engine displacements ranging up to 736 in^3.

Table 3
Tailpipe Local Exhaust Ventilation Measurements
Illinois Army National Guard
Carbondale Armory Vehicle Maintenance Building
Carbondale, Illinois
December 10, 2012

Duct location	Duct diameter (inches)	Exhaust flow rate (cfm)
East Tailpipe	8	1,248
West Tailpipe	8	1,243

Table 4
NGB Ventilation Criteria for Maintenance Shops

Location	Ventilation Criteria	Basis for Criteria
Tailpipe Local Exhaust Ventilation for vehicles that have diesel engine displacements ranging up to 0.426 ft^3 (736 in^3). (e.g., LMTV, 5-ton, Humvee, and HEMTT)	800 cubic feet per minute (CFM) when diesel engines are idling.	ACGIH Industrial Ventilation Manual 26th Edition Figure VS-85-02 ARNG-CSG-P Information Paper 1 June 2011
Tailpipe Local Exhaust Ventilation for vehicles that have diesel engine displacements greater than 0.426 ft^3 (736 in^3). (e.g., Caterpillar Scraper 621B, 0.516 ft^3)	Develop a list of vehicles that are serviced in the maintenance bays and submit the list to the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office for specific guidance regarding acceptable tailpipe exhaust ventilation.	ACGIH Industrial Ventilation Manual 26th Edition Figure VS-85-02 ARNG-CSG-P Information Paper 1 June 2011

No vehicle maintenance was scheduled or performed on the day of the survey. Personal exposure monitoring for potential airborne contaminants and noise should be scheduled and conducted when vehicle maintenance is performed in the maintenance bays.

Recommendations:

1. If maintenance activities require personnel to test engines while they are idling in the maintenance bays, carbon monoxide monitors should be installed in the vehicle maintenance building. **(RAC 2)**

2. Observe NGB recommended LEV exhaust flow rates when operating or testing engines in maintenance bays. **(RAC 2)**

3. Personal exposure monitoring for potential airborne contaminants and noise should be scheduled and conducted when vehicle maintenance is performed in the maintenance bays. **(RAC 2)**

Figure 4 – Tailpipe LEV

Lighting Survey

A lighting survey was conducted in the offices, support and storage areas in the Carbondale Armory. The results are contained in Table 5. NGB lighting criteria are contained in Table 6.

Table 5
Lighting Survey
Illinois Army National Guard
Carbondale Armory
Carbondale, Illinois
December 10, 2012

Location	Illumination (foot candles)
Room 181, Classroom	14-16
Room 174, Fitness Center	15-25
Room 168, Locker Room	14-17
Room 169, Locker Room	14-18
Drill Floor	39-48
Room 146, Kitchen	23-41
Room 145, Kitchen Storage	38-42
Room 157, Office	20-32
Room 158, Vault	2-17
Room 156, Supply Room	10-25
Maintenance Bay	32-45
Room 103, Storage	12-14
Room 139, Break Room	19-24
Room 107, Office	23-38
Room 141, Office	19-25
Room 116	18-33

Table 6
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices, support 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

Illinois Army National Guard State Points of Contact

Non-Responsive

[redacted]

Carbondale Armory Points of Contact

Non-Responsive

[redacted]

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Local Exhaust Ventilation Measurements

A TSI Velocicalc was used to measure general exhaust ventilation flow rates and the tailpipe exhaust systems. The TSI Velocicalc had been calibrated according to the manufacturer's specifications. Local exhaust ventilation findings were evaluated based on criteria established by the ACGIH in its publication *Industrial Ventilation, A Manual of Recommended Practices,* 27th Edition, and by OSHA 29 CFR 1910.94, 106, and 252 ventilation requirements.

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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium and Chromium

Sampling Site:	NGB: Carbondale, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10840
DFOH Lab Nos.:	TM-13-58789 through TM-13-58794
Date Received:	12/13/12
Data Analyzed:	12/17/12 – 12/18/12
Date Issued:	12/20/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAW11	TM-13-58789	<10	<91
ILCAW12	TM-13-58790	<10	<91
ILCAW13	TM-13-58791	<10	<91
ILCAW14	TM-13-58792	<10	<91
ILCAW15	TM-13-58793	<10	<91
ILCAW16**	TM-13-58794	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAW11	TM-13-58789	<1.0	<9.1
ILCAW12	TM-13-58790	<1.0	<9.1
ILCAW13	TM-13-58791	<1.0	<9.1
ILCAW14	TM-13-58792	4.7	42
ILCAW15	TM-13-58793	<1.0	<9.1
ILCAW16**	TM-13-58794	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCAW11	TM-13-58789	<10	<91
ILCAW12	TM-13-58790	<10	<91
ILCAW13	TM-13-58791	<10	<91
ILCAW14	TM-13-58792	<10	<91
ILCAW15	TM-13-58793	<10	<91
ILCAW16**	TM-13-58794	<10	None Detected

PJLA LAP, LLC

Project 10840
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FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

Surface Wipe Sampling Criteria

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

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

PJLA LAP, LLC

Project 10840
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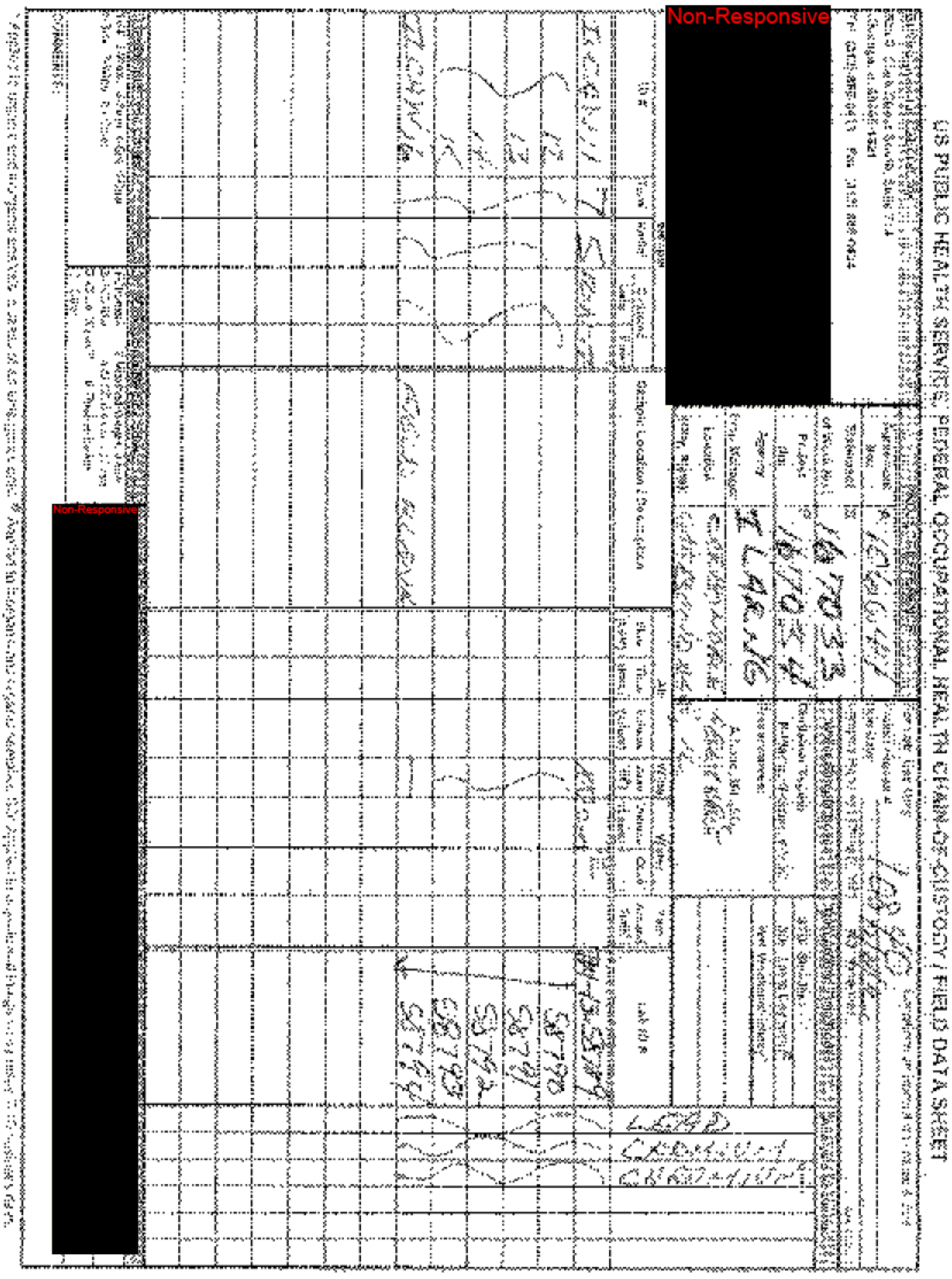

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Champaign Armory
109 E. Park Street
Champaign, Illinois

Survey date: April 1, 2010

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 15, 2010

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Champaign Armory, located in Champaign, Illinois. 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 Champaign Armory was built in 1938. The facility has 28,899 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, poured concrete walls that are 21 feet high and a gabled roof that is supported by poured concrete trusses. The office and classroom areas have tile floors, poured concrete walls and suspended ceilings. The exterior of the building is masonry.

The Champaign Armory is the base of operations for the Bravo Company 634th 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 Champaign Armory had a firing range in the basement that was closed about 20 years ago and is now a locker 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 has not been used for community activities in over four years.

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.

Four samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILCHW3 was collected on the floor at the east end of the locker room where the bullet trap for the firing range was previously located. This sample had a lead concentration of 5,200 ug/ft^2. The Champaign 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 Champaign 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Four samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.	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.	4
One of the surface wipe sample results exceeded the above criteria. Sample ILCHW3 was collected on the floor at the east end of the locker room where the bullet trap for the firing range was previously located. This sample had a lead concentration of 5,200 ug/ft^2.	Continue to clean the horizontal surfaces in work and storage areas.	4
	When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.	2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Champaign 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Champaign Armory, located in Champaign, Illinois. 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 April 1, 2010.

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.

IV. Site Description

The Champaign Armory was built in 1938. The facility has 28,899 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, poured concrete walls that are 21 feet high and a gabled roof that is supported by poured concrete trusses. The office and classroom areas have tile floors, poured concrete walls and suspended ceilings. The exterior of the building is masonry.

The Champaign Armory is the base of operations for the Bravo Company 634th 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 Champaign Armory had a firing range in the basement that was closed about 20 years ago and is now a locker 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 has not been used for community activities in over four years.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Champaign Armory

VI. Findings, Discussion, and Recommendations

The Champaign Armory is the base of operations for the Bravo Company 634th Brigade Support Battalion. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

Surface Area Wipe Samples

Four samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILCHW3 was collected on the floor at the east end of the locker room where the bullet trap for the firing range was previously located. This sample had a lead concentration of 5,200 ug/ft^2. The Champaign 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Champaign Armory
Champaign, Illinois
April 1, 2010

Analyte	ILCHW1 (ug/ft^2) Kitchen – on Countertop	ILCHW2 (ug/ft^2) Drill Floor – Center of Floor	ILCHW3 (ug/ft^2) Basement Locker Room – East End on Floor (Former Bullet Trap Area)
Lead	<91	<91	**5,200**
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILCHW4 (ug/ft^2) Vault – on Weapon Storage Locker	ILCHW5 (ug/ft^2) Field Blank
Lead	<91	ND
Cadmium	14	ND
Chromium	<10	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILCHW1

Sample ILCHW2

Sample ILCHW3

Sample ILCHW4

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Champaign Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Champaign Armory
Champaign, Illinois
April 1, 2010

Location	Illumination (foot candles)
Maintenance Office	46
Men's Latrine	20
Mess Storage	22
Kitchen	59
Drill Floor (Center)	30
Storage Room	9
Weapon Simulation Room	46
Enlisted Men's Latrine	69
Illini Break Room	52
Basement Mechanical Room	9
Basement Locker Room	28
Main Classroom	16
Main Hallway	16
Recruiter's Office – West	24
Recruiter's Office – East	16
1st Sergeant's Office	19
Orderly Room	48
Captain's Office	73
Officer's Latrine	24
Break Room	29
Retention Office	97
Weight Room (on stage)	9

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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**)

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.

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of Federal Occupational Health.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Champaign Armory Points of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Champaign, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9477
DFOH Lab Nos.:	TM-10-45353 through TM-10-45357
Date Received:	04/23/10
Data Analyzed:	04/30/10 through 05/04/10
Date Issued:	05/07/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCHW1	TM-10-45353	<10	<91
ILCHW2	TM-10-45354	<10	<91
ILCHW3	TM-10-45355	580	5200
ILCHW4	TM-10-45356	<10	<91
ILCHW5**	TM-10-45357	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCHW1	TM-10-45353	<1.0	<9.1
ILCHW2	TM-10-45354	<1.0	<9.1
ILCHW3	TM-10-45355	<1.0	<9.1
ILCHW4	TM-10-45356	1.5	14
ILCHW5**	TM-10-45357	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILCHW1	TM-10-45353	<10	<91
ILCHW2	TM-10-45354	<10	<91
ILCHW3	TM-10-45355	<10	<91
ILCHW4	TM-10-45356	<10	<10
ILCHW5**	TM-10-45357	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9477
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive [redacted]

PROJECT REFERENCE

Agreement No.:	A 1066446
Statement of Work No.:	S 149497
Project No:	P 149590
Agency/Project Name:	ILLINOIS ARMY NATIONAL GUARD
Location (City, State):	CHAMPAIGN ARMORY CHAMPAIGN, IL

For Lab Use Only
Project /Report #: 9477
Due Date: 5/4/10
Samples Received Chilled? YES NO (circle one)

Conditions on Receipt with Name & Date

Water Sample Codes
Container Types:
P-Plastic, G-Glass, V-VOC
Preservatives:
A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes
STD- Standard
R- Rush@
2D- Two Day Rush*
ND- Next Day Rush*@
SD- Same Day Rush*@
WH- Weekend/Holiday*

Analysis Requested
LEAD
CADMIUM
CHROMIUM

ID #	Sample Type¹	Sample Media¹	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in^2)	Water Volume (Liters)	Water Code³	Turn Around Time⁴	Lab ID #
ILCHW1	7	12	4-1-10						100cm²				TM 10-45353
ILCHW2													45354
ILCHW3													45355
ILCHW4													45356
ILCHW5					FIELD BLANK				—				45357

BEST AVAILABLE COPY

Sample Type Codes
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8-Contact Plate
9-Tape 10-Spore Trap (Zefon & others)
11-Other

Sample Media Codes
1-Charcoal 2-XAD 3-Matched Weight
4-Preweighted 5-MEA 6-CCA 7-R2A/TSA
8-Air-O-Cell Cassette 9-MCE Cassette (0.4
10-MCE Cassette (0.8) 11-MCE Filter 12-O

Relinquished By	Date & Time	Received By	Date & Time
Non-Responsive [redacted]			30 Apr

COMMENTS:

* Applied to non-viable microbiological samples only. @ Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Decatur Armory
5550 Ocean Trail Drive
Decatur, Illinois

Survey date: December 3, 2010

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

January 21, 2011

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IV. Site Description

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Decatur Armory, located in Decatur, Illinois. 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 Decatur Armory was built in 1993. The facility has 41,277 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The Decatur Armory is the base of operations for HHC 766th Engineer Battalion, FSC 766th Engineer Battalion, Alpha and Delta Company of 106th Aviation, and Det. 1 Company C of 1-376th Aviation. During the week, most of the activities at the armory involve administrative work. Site personnel reported no vehicle maintenance is performed at the armory. The Decatur Armory had an indoor firing range that has been 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. Site personnel reported that the armory is not available for rental for 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 heavy metal contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Decatur 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 Decatur Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria.	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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Decatur Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office, and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Decatur Armory, located in Decatur, Illinois. 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 December 3, 2010.

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.

IV. Site Description

The Decatur Armory was built in 1993. The facility has 41,277 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a poured concrete floor, concrete block walls that are twenty feet high and a sloped roof that is supported by exposed metal trusses. The office and classroom areas have carpeted floors, gypsum walls and suspended ceilings. The exterior of the building is brick veneer.

The Decatur Armory is the base of operations for HHC 766th Engineer Battalion, FSC 766th Engineer Battalion, Alpha and Delta Company of 106th Aviation, and Det. 1 Company C of 1-376th Aviation. During the week, most of the activities at the armory involve administrative work. Site personnel reported no vehicle maintenance is performed at the armory. The Decatur Armory had an indoor firing range that has been 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. Site personnel reported that the armory is not available for rental for community activities.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Decatur Armory

VI. Findings, Discussion, and Recommendations

The Decatur Armory is the base of operations for HHC 766th Engineer Battalion, FSC 766th Engineer Battalion, Alpha and Delta Company of 106th Aviation, and Det. 1 Company C of 1-376th Aviation. During the week, most of the activities at the armory involve administrative work. Site personnel reported no 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Decatur 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Decatur Armory
Decatur, Illinois
December 3, 2010

Analyte	ILD2W1 (ug/ft^2) Vault – on Gun Rack	ILD2W2 (ug/ft^2) Room 150 – Former IFR – in Center of Room on Floor	ILD2W3 (ug/ft^2) Kitchen – on Counter Top
Lead	<91	<91	<91
Cadmium	25	13	<9.1
Chromium	<91	<91	<91

Analyte	ILD2W4 (ug/ft^2) Drill Floor – Center of Room on Floor	ILD2W5 (ug/ft^2) Battalion Conference Area – on Table	ILD2W6 (ug/ft^2) Field Blank
Lead	<91	<91	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
1) ug/ft^2= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant."
3) ND = None Detected

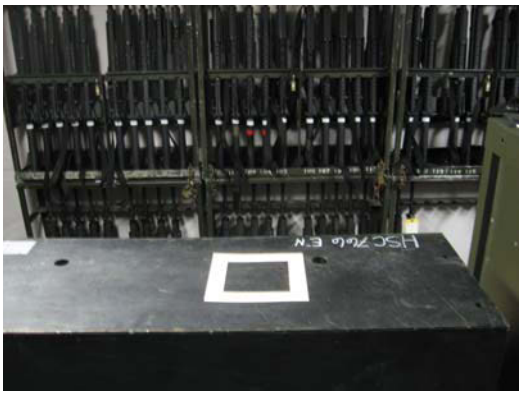
Recommendations:

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 2**)

Figure 2 – Wipe Sample Locations (below)



ILD2W1

ILD2W2

ILD2W3

ILD2W4

ILD2W5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Decatur Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Decatur Armory
Decatur, Illinois
December 3, 2010

Location	Illumination (foot candles)
Drill Floor	16
Kitchen	20
Room 135 – Office	40
Room 137 – Vault	19
Room 134 – Storage	14
Room 170 – Mechanical Room	28
Room 169 – Storage	5
HHC Locker Room	10
E Company Locker Room	23
Room 171 – Custodial	22
Room 132 – Office	20
Room 133 – Classroom	41
Room 123 – Office	30
Room 120 – Office	41
Room 119 – Office	27
Battalion Conference Area	16
Room 114 – Office	62
Room 113 – Office	18
Room 106 – Office	45

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

Recommendation:

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

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of Federal Occupational Health. This survey report was reviewed by Non-Responsive, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive

Non-Responsive
Industrial Hygiene Technician

Decatur Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium
Sampling Site: NGB: Decatur, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 9835
DFOH Lab Nos.: TM-11-48393 through TM-11-48398
Date Received: 12/09/10
Data Analyzed: 12/10/10 – 12/14/10
Date Issued: 12/17/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILD2W1	TM-11-48393	<10	<91
ILD2W2	TM-11-48394	<10	<91
ILD2W3	TM-11-48395	<10	<91
ILD2W4	TM-11-48396	<10	<91
ILD2W5	TM-11-48397	<10	<91
ILD2W6**	TM-11-48398	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILD2W1	TM-11-48393	2.8	25
ILD2W2	TM-11-48394	1.5	13
ILD2W3	TM-11-48395	<1.0	<9.1
ILD2W4	TM-11-48396	<1.0	<9.1
ILD2W5	TM-11-48397	<1.0	<9.1
ILD2W6**	TM-11-48398	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILD2W1	TM-11-48393	<10	<91
ILD2W2	TM-11-48394	<10	<91
ILD2W3	TM-11-48395	<10	<91
ILD2W4	TM-11-48396	<10	<91
ILD2W5	TM-11-48397	<10	<91
ILD2W6**	TM-11-48398	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

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Project 9835
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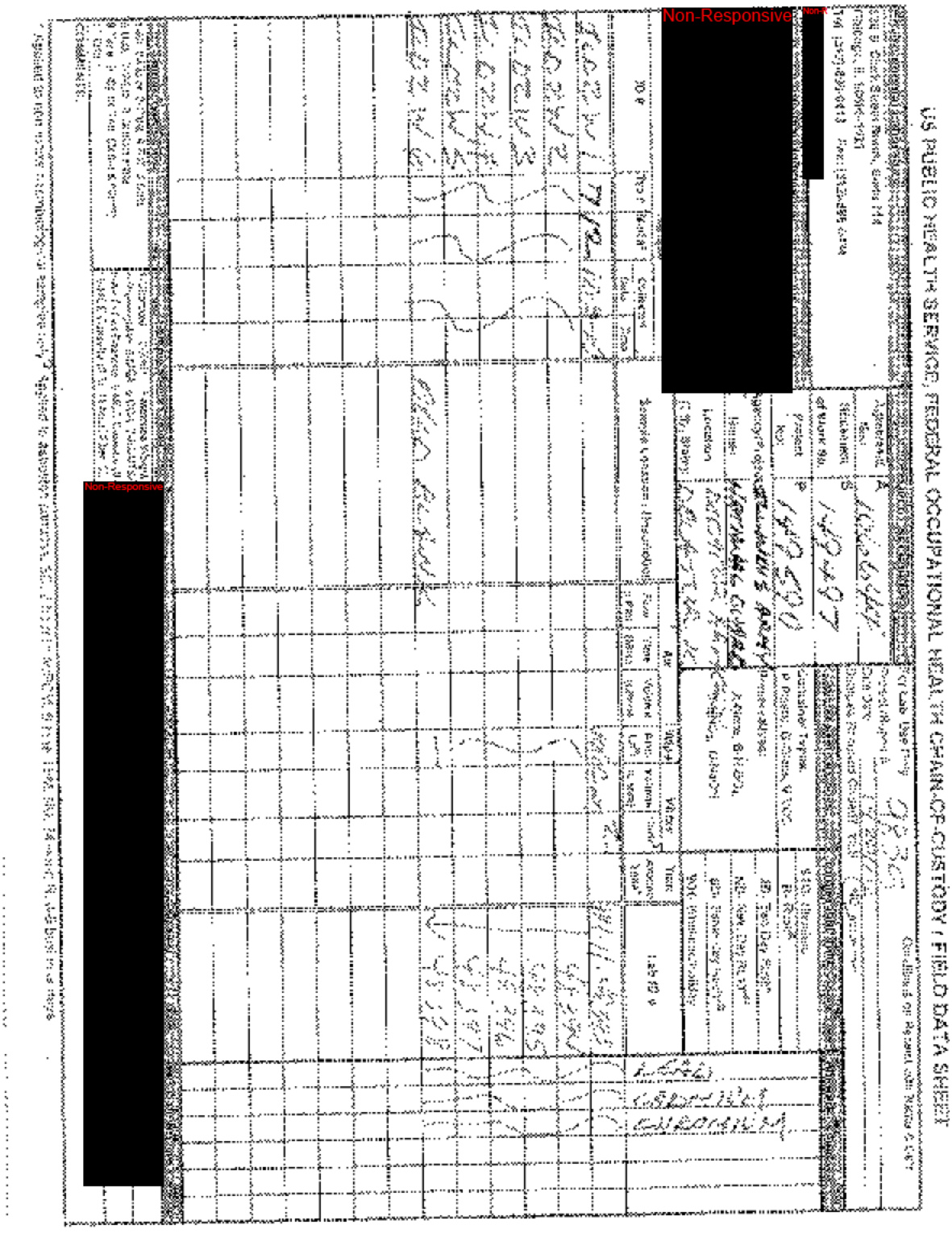

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Delavan Armory
206 East 3rd Street
Delavan, Illinois

Survey date: July 1, 2010

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

November 13, 2010

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Delavan Armory, located in Delavan, Illinois. 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 Delavan Armory was built in 1938. The facility has 28,784 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The weapons vault was not accessible on the day of the survey. The drill floor has a wood floor, concrete walls that are about 20 feet high and a poured concrete roof that is arched. The office and classroom areas have carpeted floors, concrete walls and poured concrete ceilings. The exterior of the building is brick veneer.

The Delavan Armory is the base of operations for Detachment 1 of the 1744th Transportation Company and Headquarters, Headquarters Detachment, of the 1144th Transportation 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 Delavan Armory had an indoor firing range in the basement that has been closed for over eight years. 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: American Legion Memorial Day services; as a backup site for outdoor band concerts in the summertime; senior citizens who walk the perimeter of the drill floor in the wintertime; and informal use of the basketball court 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 heavy metal contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILDEW5, which was collected on the floor of the former indoor firing range in the basement, had a lead concentration of 11,000 ug/ft^2. The Delavan 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.

During the walkthrough, employees expressed concerns about water intrusion in the former coal chute area in the basement. The source of the water intrusion in the former coal chute area in the basement should be identified and repaired. Water damage in the former coal chute area should be cleaned up.

A lighting survey was conducted in the offices and storage areas in the Delavan 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples/Water Damage		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILDEW5, which was collected on the floor of the former indoor firing range in the basement, had a lead concentration of 11,000 ug/ft^2. During the walkthrough, employees expressed concerns about water intrusion in the former coal chute area in the basement.	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. 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. The source of the water intrusion in the former coal chute area in the basement should be identified and repaired. Water damage in the former coal chute area should be cleaned up.	4 4 2 3 3
Lighting		
A lighting survey was conducted in the offices and storage areas in the Delavan 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Delavan Armory, located in Delavan, Illinois. 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 July 1, 2010.

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.

IV. Site Description

The Delavan Armory was built in 1938. The facility has 28,784 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The weapons vault was not accessible on the day of the survey. The drill floor has a wood floor, concrete walls that are about 20 feet high and a poured concrete roof that is arched. The office and classroom areas have carpeted floors, concrete walls and poured concrete ceilings. The exterior of the building is brick veneer.

The Delavan Armory is the base of operations for Detachment 1 of the 1744th Transportation Company and Headquarters, Headquarters Detachment, of the 1144th Transportation 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 Delavan Armory had an indoor firing range in the basement that has been closed for over eight years. 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: American Legion Memorial Day services; as a backup site for outdoor band concerts in the summertime; senior citizens who walk the perimeter of the drill floor in the wintertime; and informal use of the basketball court on the drill floor.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Delavan Armory

VI. Findings, Discussion, and Recommendations

The Delavan Armory is the base of operations for Detachment 1 of the 1744th Transportation Company and Headquarters, Headquarters Detachment, of the 1144th Transportation Battalion. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILDEW5, which was collected on the floor of the former indoor firing range in the basement, had a lead concentration of 11,000 ug/ft^2. The Delavan 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Delavan Armory
Delavan, Illinois
July 1, 2010

Analyte	ILDEW1 (ug/ft^2) Room 112 Classroom/Break Room – on Countertop	ILDEW2 (ug/ft^2) Drill Floor – on Floor – Center of Room	ILDEW3 (ug/ft^2) In Front of Vault – on Floor
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILDEW4 (ug/ft^2) Kitchen – on Countertop	ILDEW5 (ug/ft^2) Basement – Former IFR – on Floor	ILDEW6 (ug/ft^2) Field Blank
Lead	<91	**11,000**	ND
Cadmium	<9.1	12	ND
Chromium	<91	180	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILDEW1

Sample ILDEW2

Sample ILDEW3

Sample ILDEW4

Sample ILDEW5

Water Damage

During the walkthrough, employees expressed concerns about water intrusion in the former coal chute area in the basement (Figure 3).

Figure 3 – Water Intrusion in Former Coal Chute Area

The source of the water intrusion in the former coal chute area in the basement should be identified and repaired. Water damage in the former coal chute area should be cleaned up.

Recommendations:

1. The source of the water intrusion in the former coal chute area in the basement should be identified and repaired. (**RAC 3**)

2. Water damage in the former coal chute area should be cleaned up. (**RAC 3**)

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Delavan Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Delavan Armory
Delavan, Illinois
July 1, 2010

Location	Illumination (foot candles)
Room 110	37
Room 111 Storage	22
Vault	20
Room 122 Classroom	6
Room 118 Conference Room	76
Basement Weight Room	16
Basement Storage Area	7
Boiler Room	5
Men's Latrine	20
Locker Room	24
Room 113 Office	74
Room 120 Office	19
Room 121 Office	15
Kitchen	12
Room 107A Office	64
Room 107B Office	48
Tool Room	8
Maintenance Bay Storage (door open)	25
Drill Floor	29-33
Room 102 Office	38
Room 132 Office	25
Room 134	27
Room 134B Copy Room	32
Room 130 Office	17
Room 128 Office	46
Room 127 Office	24
Room 126 Office	37
Room 125 Office	27

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive

Delavan Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Delavan, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9602
DFOH Lab Nos.:	TM-10-46491 through TM-10-46496
Date Received:	07/09/10
Data Analyzed:	07/23/10 through 08/03/10
Date Issued:	08/03/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILDEW1	TM-10-46491	<10	<91
ILDEW2	TM-10-46492	<10	<91
ILDEW3	TM-10-46493	<10	<91
ILDEW4	TM-10-46494	<10	<91
ILDEW5	TM-10-46495	1200	11000
ILDEW6**	TM-10-46496	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILDEW1	TM-10-46491	<1.0	<9.1
ILDEW2	TM-10-46492	<1.0	<9.1
ILDEW3	TM-10-46493	<1.0	<9.1
ILDEW4	TM-10-46494	<1.0	<9.1
ILDEW5	TM-10-46495	1.3	12
ILDEW6**	TM-10-46496	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILDEW1	TM-10-46491	<10	<91
ILDEW2	TM-10-46492	<10	<91
ILDEW3	TM-10-46493	<10	<91
ILDEW4	TM-10-46494	<10	<91
ILDEW5	TM-10-46495	19	180
ILDEW6**	TM-10-46496	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9602
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US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

Contact Information
Non-Responsive

PROJECT REFERENCE
Agreement No.: IA 1060424
Statement of Work No.: S 149497
Project No: P 149590
Agency/Project Name: WORTHAM ILNG ARMY
Location (City, State): DELAVAN, IL

For Lab Use Only
Project /Report #: 149590
Due Date:
Samples Received Chilled? YES (NO) (circle one)
Conditions on Receipt with Name & Date

Water Sample Codes
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes
STD- Standard
R- Rush[3]
2D- Two Day Rush*
ND- Next Day Rush*[3]
SD- Same Day Rush*[3]
WH- Weekend/Holiday*

Analysis Requested
LEAD
CADMIUM
CHROMIUM

Sample ID #	Sample Type*	Sample Media*	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in^2)	Wipe Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #
HDEW1			7/12	1710									
HDEW2										100 Cm2			46492
HDEW3													46493
HDEW4													46494
HDEW5													46495
HDEW6					FIELD BLANK								46496

Sample Type Codes
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8-Contact Plate
9-Tape 10-Spore Trap (Zefon & others)
11-Other
COMMENTS:

Sample Media Codes
1-Charcoal 2-XAD 3-Matched Weight
4-Preweighted 5-MEA 6-CCA 7-R2A/TSA
8-Air-O-Cell Cassette 9-MCE Cassette (0.
10-MCE Cassette (0.8) 11-MCE Filter 12-

Non-Responsive

Relinquished By

Date & Time

Received By

Date & Time

* Applied to non-viable microbiological samples only. @ Applied to asbestos samples. SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Dixon Armory
412 West Everett
Dixon, Illinois

Survey date: April 10, 2013

Performed by

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

June 2, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Dixon Armory, located in Dixon, Illinois. 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 Dixon Armory was built in 1938 and it has about 28,095 square feet of floor space. The armory is the base of operations for Troop B, 2-106th Cavalry Squadron. 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 the mid 1980s and converted to a platoon 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: senior walkers; park district basketball and volleyball; and YMCA soccer for kindergarten through 8th grade children.

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. Two of the surface wipe sample results exceeded the NGB guideline for lead. A sample collected in the basement (in the former IFR at the firing line area) had a lead concentration of 6,473 ug/ft^2. A sample collected in the basement (in the former IFR at the bullet trap area) had a lead concentration of 7,805 ug/ft^2. 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^2.

The Dixon 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 Dixon Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Dixon Armory, located in Dixon, Illinois. 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 April 10, 2013.

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

III. Site Description

The Dixon Armory was built in 1938 and it has about 28,095 square feet of floor space. The armory is the base of operations for Troop B, 2-106th Cavalry Squadron. 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 the mid 1980s and converted to a platoon 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: senior walkers; park district basketball and volleyball; and YMCA soccer for kindergarten through 8th grade children.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Dixon Armory

V. Findings, Discussion, and Recommendations

The Dixon Armory is the base of operations for Troop B, 2-106th Cavalry Squadron. Site personnel reported that no vehicle maintenance is performed at the armory. The armory had an indoor firing range that was closed in the mid 1980s and converted to a platoon 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: senior walkers; park district basketball and volleyball; and YMCA soccer for kindergarten through 8th grade children.

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 guideline for lead is contained in Table 2.

Two of the surface wipe sample results exceeded the NGB guideline. Sample ILDXW4, which was collected in the basement (in the former IFR at the firing line area) had a lead concentration of 6,473 ug/ft^2. Sample ILDXW5, which was collected in the basement (in the former IFR at the bullet trap area) had a lead concentration of 7,805 ug/ft^2. 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^2.

The Dixon 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
Illinois Army National Guard
Dixon Armory
Dixon, Illinois
April 10, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Kitchen, on Counter	ILDXW1	<91
Drill Floor, Center	ILDXW2	<91
Vault, on Floor	ILDXW3	126
Basement, Former IFR, Firing Line	ILDXW4	**6,473**
Basement, Former IFR, Bullet Trap	ILDXW5	**7,805**
Field Blank	ILDXW6	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 Guideline for Lead

Metal	Acceptable Surface Level ug/ft^2	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^2. (**RAC 2**)

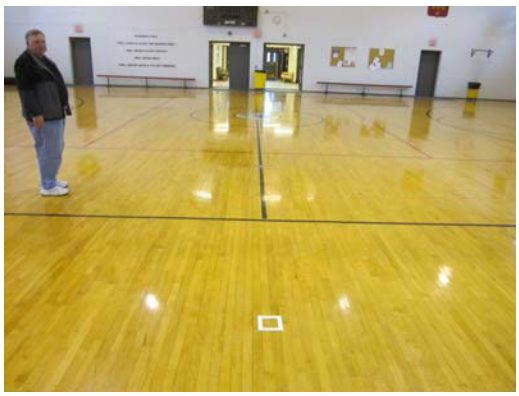
2. Continue to prohibit the presence of food and drink in work areas and stress the importance of hand washing prior to the consumption of food items. (**RAC 4**)

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 ILDXW1



Sample ILDXW2

Sample ILDXW3

Sample ILDXW4

Sample ILDXW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Dixon Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Dixon Armory
Dixon, Illinois
April 10, 2013

Location	Illumination (foot candles)
Training Room	60-64
Commander's Office	33-40
Latrine, 2nd Floor	3-65
Readiness NCO Office	62-69
Training NCO Office	58-60
Recruiting Office	62-70
1st Sergeant Office	23-46
Classroom, 2nd Floor	49-60
Locker Room, 2nd Floor	13-24
Supply Office	41-72
Supply Room	25-33
Custodial Office	67-72
Dining Hall/Classroom	15-22
Kitchen	48-94
Basement Storage	8-21
Boiler Room	9-15
Weight Room	5-13
Drill Floor	14-28

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

Recommendation:

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

This survey was conducted by, and report written by Non-Responsive, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Dixon Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY
638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Dixon, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 11062
DFOH Lab Nos.: TM-13-60657 through TM-13-60662
Date Received: 04/15/13
Data Analyzed: 04/17/13 - 04/19/13
Date Issued: 04/23/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 11062
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILDXW1	TM-13-60657	<10	<91
ILDXW2	TM-13-60658	<10	<91
ILDXW3	TM-13-60659	14	126
ILDXW4	TM-13-60660	712	6473
ILDXW5	TM-13-60661	859	7805
ILDXW6**	TM-13-60662	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11062
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US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Non-Responsive

Non-Responsive

Non-Responsive

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
East St. Louis Armory
2931 State Street
East St. Louis, Illinois

Survey date: December 7, 2012

Performed by

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

February 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, East St. Louis Armory, located in East St. Louis, Illinois. 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 East St. Louis Armory was built in 1952, and has 45,539 square feet of floor space. 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.

The East St. Louis Armory has an indoor firing range (IFR). Site personnel reported that the IFR is inactive and that access to the range is restricted. 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 and Lincoln`s Academy Challenge.

Nine samples were collected on representative surfaces in the facility and analyzed for lead. Five of the surface wipe sample results exceeded the NGB criteria. A sample collected on the bullet trap in the IFR, had a lead concentration of 18,000 ug/ft^2. A sample collected on the floor near the bullet trap in the IFR, had a lead concentration of 9,591 ug/ft^2. A sample collected on the floor, in the firing line area of the IFR, had a lead concentration of 376 ug/ft^2. A sample collected on the floor, in the center of the IFR, had a lead concentration of 315 ug/ft^2. A sample collected on a cabinet in the IFR had a lead concentration of 891 ug/ft^2.

The IFR in the armory had lead contamination on all surfaces that were tested. Site personnel reported that the firing range is no longer used. Access to the IFR should continue to be restricted. The armory should perform a lead abatement in the IFR. All surfaces and objects in the IFR should be decontaminated.

The East St. Louis 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.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, East St. Louis Armory, located in East St. Louis, Illinois. 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 December 7, 2012.

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

III. Site Description

The East St. Louis Armory was built in 1952. The facility has 45,539 square feet of floor space. The armory is the base of operations for the 134th Transportation Company, and the Recruit Sustainment Program. 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.

The East St. Louis Armory has an indoor firing range (IFR). Site personnel reported that the IFR is inactive and that access to the range is restricted. 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 and Lincoln`s Academy Challenge.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – East St. Louis Armory

V. Findings, Discussion, and Recommendations

The East St. Louis Armory is the base of operations for the 134th Transportation Company, and the Recruit Sustainment Program. Site personnel reported that no vehicle maintenance is performed at the armory.

The East St. Louis Armory has an IFR. Site personnel reported that the IFR is inactive and that access to the range is restricted. 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 and Lincoln`s Academy Challenge.

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.

Five of the surface wipe sample results exceeded the NGB criteria. Sample ILESXW12, which was collected on the floor, in the firing line area of the IFR, had a lead concentration of 376 ug/ft^2. Sample ILESXW13, which was collected on the floor, in the center of the IFR, had a lead concentration of 315 ug/ft^2. Sample ILESXW14, which was collected on a cabinet in the IFR,

had a lead concentration of 891 ug/ft^2. Sample ILESXW15, which was collected on the bullet trap in the IFR, had a lead concentration of 18,000 ug/ft^2. Sample ILESXW16, which was collected on the floor near the bullet trap in the IFR, had a lead concentration of 9,591 ug/ft^2.

The IFR in the armory had lead contamination on all surfaces that were tested. Site personnel reported that the IFR is inactive and that access to the range is restricted. The armory should perform a lead abatement in the IFR. All surfaces and objects in the IFR should be decontaminated. Access to the IFR should continue to be restricted.

The East St. Louis 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
Area Wipe Sampling Results for Lead
Illinois Army National Guard
East St. Louis Armory
East St. Louis, Illinois
December 7, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Conference Room, on Table	ILESXW11	<91
Indoor Firing Range, Firing Line, on Floor	ILESXW12	**376**
Indoor Firing Range, Center of Range, on Floor	ILESXW13	**315**
Indoor Firing Range, on Cabinet	ILESXW14	**891**
Indoor Firing Range, on Bullet Trap	ILESXW15	**18,000**
Indoor Firing Range, on Floor near Bullet Trap	ILESXW16	**9,591**
In Front of Access Door to Firing Range, on Floor	ILESXW17	119
Kitchen, on Range	ILESXW18	<91
Drill Floor, Center, on Floor	ILESXW19	<91
Field Blank	ILESXW20	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^2	Basis for Criteria
Lead	200	NG Pam 420-15

Recommendations:

1. The IFR in the armory had lead contamination on all surfaces that were tested. Site personnel reported that the firing range is no longer used. Access to the IFR should continue to be restricted. (**RAC 2**)

2. The armory should perform a lead abatement in the IFR. All surfaces and objects in the IFR should be decontaminated. (**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 4**)

4. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

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**)

Figure 2 – Wipe Sample Locations (below)


Sample ILESXW11


Sample ILESXW12

Sample ILESXW13

Sample ILESXW14

Sample ILESXW15

Sample ILESXW16

Sample ILESXW17

Sample ILESXW18

Sample ILESXW19

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the East St. Louis Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
East St. Louis Armory
East St. Louis, Illinois
December 7, 2012

Location	Illumination (foot candles)
Office, Survivor Outreach	68-80
Readiness NCO Office	53-81
M Company RSP Office	37-66
Mail Room	22-71
IFR (Inactive)	17-21
Men`s Locker Room	7-12
Drill Floor	9-16
Dining Facility	17-28
Locker Room/Storage	24-26
Kitchen	13-28
Men`s Latrine	12-16
Conference Room	14-67
Distributed Learning Center	22-28

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

East St. Louis Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: East St. Louis, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10833R
DFOH Lab Nos.:	TM-13-58735 through TM-13-58744
Date Received:	12/10/12
Data Analyzed:	12/14/12 - 12/18/12
Date Issued:	02/05/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 10343

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft^2)
ILESXW11	TM-13-58735	<10	<91
ILESXW12	TM-13-58736	41	376
ILESXW13	TM-13-58737	35	315
ILESXW14	TM-13-58738	98	891
ILESXW15	TM-13-58739	1980	18000
ILESXW16	TM-13-58740	1055	9591
ILESXW17	TM-13-58741	13	119
ILESXW18	TM-13-58742	<10	<91
ILESXW19	TM-13-58743	<10	<91
ILESXW20	TM-13-58744	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

Metals in Wipe Limits
(based on one ft^2 sampled area)

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10833R
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0411 Fax: (312)-886-0434
Non-Responsive

Non-Responsive

PROJECT REFERENCE

Agreement No.:	A 106644
Statement of Work No.:	S 167033
Project No:	P 167034
Agency Proj. Manager	ILARNG
Location (City, State):	EAST ST LOUIS " " ILLINOIS

For Lab Use Only
Project /Report #: 10833
Due Date: 12/18/12
Samples Received Chilled? YES (NO) (circle one)
Conditions on Receipt with Name & Date
Rev. 07/2010

Water Sample Codes[3]
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H2SO4, C-HNO3, D-NaOH

Turn Around Time Codes[4]
STD- Standard
3D- Three Day Rush[@]
WH Weekend/Holiday*

Analysis Requested: LEAD

ID #	Sample Type[1]	Sample Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (ft²)	Water Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #
ILESXW11	7	5	12-7-12						100cm²				TM-13-58735
12													58736
13													58737
14													58738
15													58739
16													58740
17													58741
18													58742
19													58743
ILESXW20					FIELD BLANK				—				58744

Sample Type Codes[1]: 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8 - Other

Sample Media Codes[2]: 1-Charcoal 2-Matched Weight, 0.8um 3-PVC filter 4-M CE 0.8 um , 37 mm 5-Ghost Wipes™ 6. Passive badge 7. Other

Relinquished By | Date & Time | Received By | Date & Time

Non-Responsive

COMMENTS:

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

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Effingham Armory
1206 West Temple Avenue
Effingham, Illinois

Survey date: December 13, 2012

Performed by

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

February 21, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Effingham Armory, located in Effingham, Illinois. 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 Effingham Armory was built in 1958 and encompasses about 22,050 square feet of floor space. The armory is the base of operations for Company B 2nd Battalion 130th 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. The Effingham Armory had an indoor firing range (IFR) that was closed approximately twenty years ago, and is now used for storage. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Community activities at the armory include the use of classrooms for motorcycle rider training.

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. Two of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected on the bullet trap in the basement (in the former IFR), had a lead concentration of 267 ug/ft^2. A sample collected on the floor in the basement (at the bullet trap area in the former IFR), had a lead concentration of 7,318 ug/ft^2.

The Effingham 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. The armory should clean up the areas where lead contamination has been identified. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.

The armory has Val 6 Shizuoka Seiki infrared oil heaters that may be used to heat the drill floor in case of an emergency. If the oil heaters are used to heat the armory appropriate ventilation, as specified by the manufacturer, should be provided and carbon monoxide monitors should be installed to warn personnel about potential exposure.

A lighting survey was conducted in the offices and storage areas in the Effingham Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Effingham Armory, located in Effingham, Illinois. 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 December 13, 2012.

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

III. Site Description

The Effingham Armory was built in 1958 and encompasses about 22,050 square feet of floor space. The armory is the base of operations for Company B 2nd Battalion 130th 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. The Effingham Armory had an indoor firing range (IFR) that was closed approximately twenty years ago, and is now used for storage. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Community activities at the armory include the use of classrooms for motorcycle rider training.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Effingham Armory

V. Findings, Discussion, and Recommendations

The Effingham Armory is the base of operations for Company B 2nd Battalion 130th 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. The Effingham Armory had an IFR that was closed approximately twenty years ago, and is now used for storage. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Community activities at the armory include the use of classrooms for motorcycle rider training.

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.

Two of the surface wipe sample results exceeded the NGB criteria. Sample ILEFXW3, which was collected on the bullet trap in the basement (in the former IFR), had a lead concentration of 267 ug/ft^2. Sample ILEFXW4, which was collected on the floor in the basement (at the bullet trap area in the former IFR), had a lead concentration of 7,318 ug/ft^2. The Effingham 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. The armory should clean up the areas where lead contamination has been identified. 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
Illinois Army National Guard
Effingham Armory
Effingham, Illinois
December 13, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Basement, Firing Line on Floor – Former IFR	ILEFXW1	<91
Basement, Mid-Range – Former IFR	ILEFXW2	197
Basement, on Bullet Trap – Former IFR	ILEFXW3	**267**
Basement, at Bullet Trap on Floor – Former IFR	ILEFXW4	**7,318**
Vault, on Gun Rack	ILEFXW5	<91
Field Blank	ILEFXW6	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^2	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. Clean up the areas where lead contamination has been identified. (**RAC 2**)

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 ILEFXW1

Sample ILEFXW2

Sample ILEFXW3

Sample ILEFXW4

Sample ILEFXW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Effingham Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Effingham Armory
Effingham, Illinois
December 13, 2012

Location	Illumination (foot candles)
Armory Manager Office	28-35
Drill Floor	25-47
Room 6, Office	25-34
Room 7, Break Room	13-23
Room 8, Classroom	11-24
Weight Room	22-33
Room 9, Locker Room	46-61
Room 9, Office	48-66
Room 9, Supply	50-58
Vault	10-22
Kitchen	21-36
Room 12, Office	9-12
Room 11, Janitor`s Closet	4-8
Boiler Room	7-14
Basement Storage – Former IFR	2-8
Room 16, Locker Room	12-17
Room 4, Office	22-23

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

Recommendation:

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

Use of Portable Diesel Fuel Space Heaters

Site personnel reported that the armory has been without central heat for about 2 years. On the day of the survey, they were using portable diesel fuel space heaters to heat the drill floor and armory (Figure 3). On the day of the survey, two Val 6 Shizuoka Seiki infrared oil heaters were in use on the drill floor (Figure 4). The heaters were equipped with warning labels that indicated ventilation was required if used indoors (Figure 5). Site personnel indicated that facilities intended to upgrade the heating system within the next two weeks. During a follow-up telephone call on 2/21/13, Jeremy Wenthe reported that the Val 6 Shizuoka Seiki infrared oil heaters were no longer used to heat the drill floor. He indicated that infrared tube heaters were installed on the rafters in the drill floor area during the second week of January, 2012, and that offices were heated by upgraded electric space heaters.

The Val 6 Shizuoka Seiki infrared oil heaters are still stored on the drill floor, and may be used in case of an emergency. If the Val 6 Shizuoka Seiki infrared oil heaters are used to heat the armory appropriate ventilation, as specified by the manufacturer, should be provided. Carbon monoxide is an odorless, colorless toxic gas that is a byproduct of diesel fuel combustion. If the Val 6 Shizuoka Seiki infrared oil heaters are used to heat the armory, carbon monoxide monitors should be installed to warn personnel about potential exposure.

Recommendations:

1. If the Val 6 Shizuoka Seiki infrared oil heaters are used to heat the armory appropriate ventilation, as specified by the manufacturer, should be provided. (**RAC 2**)

2. If the Val 6 Shizuoka Seiki infrared oil heaters are used to heat the armory carbon monoxide monitors should be installed to warn personnel about potential exposure. (**RAC 2**)

Figure 3 – Diesel Fuel Space Heater In Use on Drill Floor

Figure 4 – Val 6 Shizuoka Seiki Infrared Oil Heater

Figure 5 – Warning Label on Val 6 Shizuoka Seiki Infrared Oil Heater

This survey was conducted by, and report written by Andrew Lucas, CIH, CPE as a representative of the NGB. This survey report was reviewed by Randy Fritz, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Effingham Armory Point of Contact

Non-Responsive
POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Effingham, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10858
DFOH Lab Nos.:	TM-13-58910 through TM-13-58915
Date Received:	12/20/12
Data Analyzed:	12/21/12 - 12/27/12
Date Issued:	01/03/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10858
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILEFXW1	TM-13-58910	<10	<91
ILEFXW2	TM-13-58911	22	197
ILEFXW3	TM-13-58912	29	267
ILEFXW4	TM-13-58913	805	7318
ILEFXW5	TM-13-58914	<10	<91
ILEFXW6**	TM-13-58915	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

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ACCREDITED LABORATORY

Project 10858
Page 2 of 2

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

Non-Responsive

Non-Responsive

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Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Freeport Armory
1236 South Adams
Freeport, Illinois

Survey date: April 10, 2013

Performed by

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

June 2, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Freeport Armory, located in Freeport, Illinois. 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 Freeport Armory was built in 1958 and it has about 21,817 square feet of floor space. The armory is the base of operations for the 333rd Military Police Company. 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. The Freeport Armory had an indoor firing range that was closed in the 1970s 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: classroom use by law enforcement personnel about three times per year; and meetings of the Northwest Illinois Criminal Justice Commission.

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 guideline for lead. The Freeport 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 Freeport Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Freeport Armory, located in Freeport, Illinois. 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 April 10, 2013.

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

III. Site Description

The Freeport Armory was built in 1958 and it has about 21,817 square feet of floor space. The armory is the base of operations for the 333rd Military Police Company. 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. The Freeport Armory had an indoor firing range that was closed in the 1970s 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: classroom use by law enforcement personnel about three times per year; and meetings of the Northwest Illinois Criminal Justice Commission.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Freeport Armory

V. Findings, Discussion, and Recommendations

The Freeport Armory is the base of operations for the 333rd Military Police Company. 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. The Freeport Armory had an indoor firing range that was closed in the 1970s 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.

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 guideline for lead is contained in Table 2.

None of the surface wipe sample results exceeded the NGB guideline. The Freeport 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
Illinois Army National Guard
Freeport Armory
Freeport, Illinois
April 10, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Kitchen, on Range	ILFRW1	<91
Drill Floor, Center	ILFRW2	<91
Basement, Former IFR, Center	ILFRW3	<91
Basement, Former IFR, Bullet Trap	ILFRW4	<91
Basement, Former IFR, on Locker	ILFRW5	<91
Field Blank	ILFRW6	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 Guideline for Lead

Metal	Acceptable Surface Level ug/ft^2	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 ILFRW1

Sample ILFRW2

Sample ILFRW3

Sample ILFRW4

Sample ILFRW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Freeport Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Freeport Armory
Freeport, Illinois
April 10, 2013

Location	Illumination (foot candles)
Classroom	14-30
Library	49-52
Custodial Office	27-63
Recruiter Office	18-26
Drill Floor	54-71
Kitchen	39-78
Operations Center	40-64
Food Storage	7-20
2nd Platoon Classroom	71-132
Basement Locker Room	4-29
Basement Storage Room	5-22
Boiler Room	9-16
Weight Room	11-17
Latrine	20-57
Shower Room	6-37
Training Office	34-43
Readiness NCO Office	29-50
1st Sergeant Office	32-38
Commander's Office	25-56
Orderly Room	23-54

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

Recommendation:

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

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of the NGB. This survey report was reviewed by Non-Responsive Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Freeport Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Freeport, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 11061
DFOH Lab Nos.:	TM-13-60651 through TM-13-60656
Date Received:	04/15/13
Data Analyzed:	04/17/13 - 04/19/13
Date Issued:	04/23/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

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ACCREDITED LABORATORY

Project 11061
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILFRW1	TM-13-60651	<10	<91
ILFRW2	TM-13-60652	<10	<91
ILFRW3	TM-13-60653	<10	<91
ILFRW4	TM-13-60654	<10	<91
ILFRW5	TM-13-60655	<10	<91
ILFRW6**	TM-13-60656	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

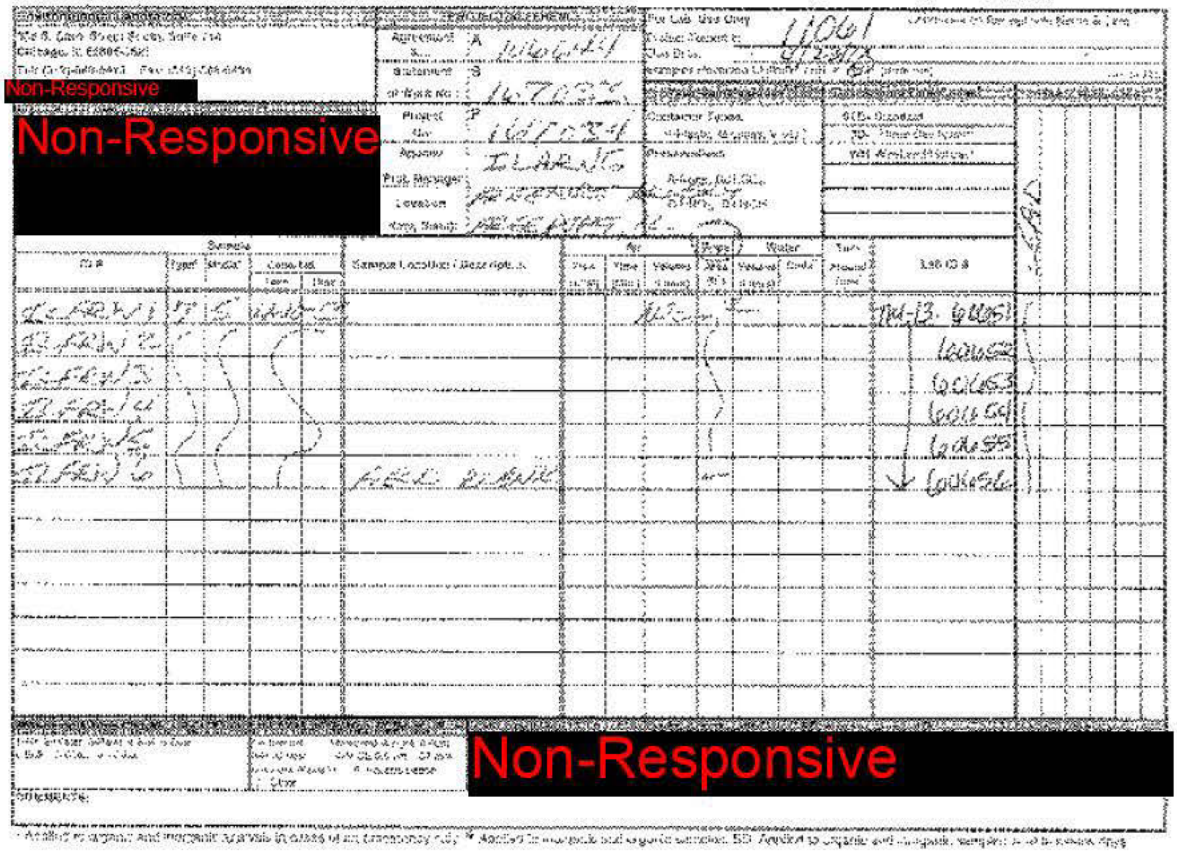
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11061
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Galva Armory
201 Morgan Road
Galva, Illinois

Survey date: March 1, 2013

Performed by

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

April 3, 2013

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Galva Armory, located in Galva, Illinois. 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 Galva Armory was built in 1953, and it has 32,864 square feet of floor space. The armory is the base of operations for Delta Company 634th 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 Galva Armory had an indoor firing range that was closed and converted to a dining 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: senior walkers; junior high school girl's basketball practice; eighth grade graduation ceremonies; and Red Cross blood drives.

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 Galva 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 Galva Armory. Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Galva Armory, located in Galva, Illinois. 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. Mr. Non-Responsive, Certified Industrial Hygienist (CIH), Certified Professional Ergonomist (CPE) conducted this survey on March 1, 2013.

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

III. Site Description

The Galva Armory was built in 1953, and it has 32,864 square feet of floor space. The armory is the base of operations for Delta Company 634th 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 Galva Armory had an indoor firing range that was closed and converted to a dining 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: senior walkers; junior high school girl's basketball practice; eighth grade graduation ceremonies; and Red Cross blood drives.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Galva Armory

V. Findings, Discussion, and Recommendations

The Galva Armory is the base of operations for Delta Company 634th Brigade Support Battalion. 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 Galva Armory had an indoor firing range that was closed and converted to a dining 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: senior walkers; junior high school girl's basketball practice; eighth grade graduation ceremonies; and Red Cross blood drives.

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 Galva 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
Illinois Army National Guard
Galva Armory
Galva, Illinois
March 1, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Break Room, on Table Top	ILGXW1	<91
Vault, on Floor	ILGXW2	<91
Kitchen, on Counter	ILGXW3	<91
Dining Room, Former IFR, at Bullet Trap	ILGXW4	<91
Drill Floor, Center	ILGXW5	<91
Field Blank	ILGXW6	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^2	Basis for Criteria
Lead	200	NG Pam 420-15

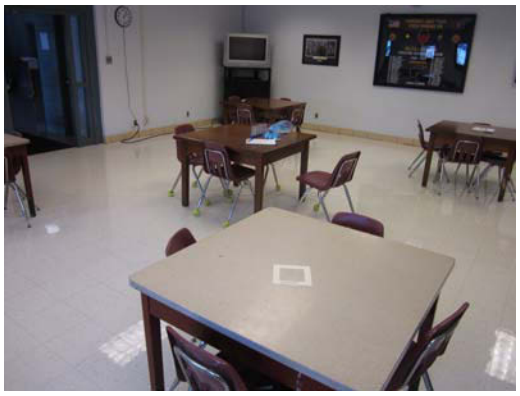
Recommendations:

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 ILGXW1

Sample ILGXW2

Sample ILGXW3

Sample ILGXW4

Sample ILGXW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Galva Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Galva Armory
Galva, Illinois
March 1, 2013

Location	Illumination (foot candles)
Maintenance Bay	27-48
Room 108	66-84
Recruiter Office	56-67
Room 109, Office	63-79
Room 110, Office	65-77
Room 111, Office	61-71
Room 117, Conference Room	52-59
Room 116, Office	41-43
Room 115, Mail Room	28-35
Room 104, Break Room	50-58
Room 101, Locker Room	18-28
Drill Floor	34-45
Supply Room	107-119
Vault	18-19
Cage Room	11-14
Boiler Room	15-16
Basement Storage	18-23
Kitchen	52-58
Classroom	50-52

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed met 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Galva Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Galva, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10950
DFOH Lab Nos.:	TM-13-59845 through TM-13-59850
Date Received:	03/07/13
Data Analyzed:	03/08/13 - 03/11/13
Date Issued:	03/13/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10950
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGXW1	TM-13-59845	<10	<91
ILGXW2	TM-13-59846	<10	<91
ILGXW3	TM-13-59847	<10	<91
ILGXW4	TM-13-59848	<10	<91
ILGXW5	TM-13-59849	<10	<91
ILGXW6**	TM-13-59850	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

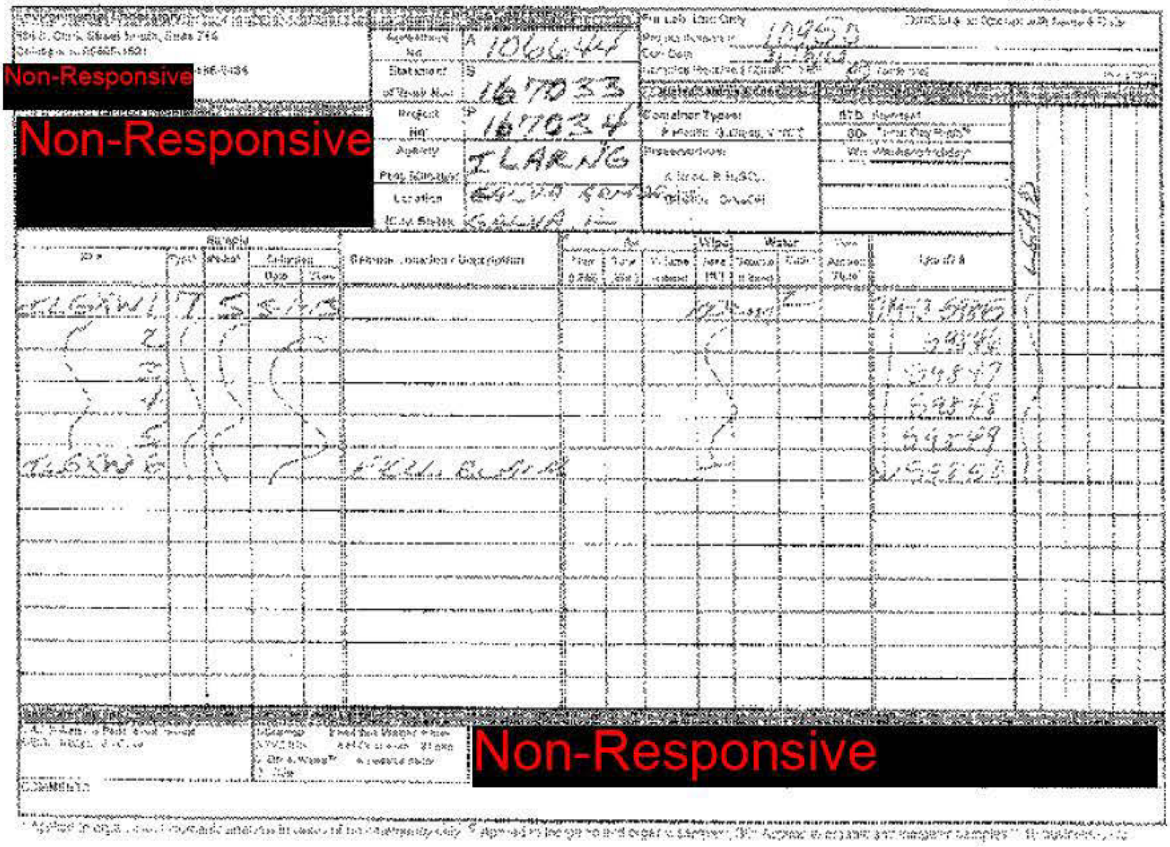
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10950
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Galva Armory
200 Morgan Road
Galva, Illinois

Survey date: July 2, 2010

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

November 9, 2010

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Galva Armory, located in Galva, Illinois. 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 Galva Armory was built in 1953. The facility has 32,864 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The Galva Armory is the base of operations for Delta Company 634th Battalion Support Brigade. 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 Galva Armory had an indoor firing range that was closed about 15 years ago and converted to a dining 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: girl's basketball practice several days per week; auctions; and eighth grade graduation ceremonies.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILGLW5 which was collected on a workbench in the maintenance bay had a lead concentration of 240 ug/ft^2. The Galva 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 Galva 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILGLW5 which was collected on a workbench in the maintenance bay had a lead concentration of 240 ug/ft^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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Galva 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Galva Armory, located in Galva, Illinois. 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 July 2, 2010.

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.

IV. Site Description

The Galva Armory was built in 1953. The facility has 32,864 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, concrete block walls that are twenty two feet high and an arched roof that is supported by exposed metal beams. The office and classroom areas have tile or carpeted floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer.

The Galva Armory is the base of operations for Delta Company 634th Battalion Support Brigade. 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 Galva Armory had an indoor firing range that was closed about 15 years ago and converted to a dining 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: girl's basketball practice several days per week; auctions; and eighth grade graduation ceremonies.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Galva Armory

VI. Findings, Discussion, and Recommendations

The Galva Armory is the base of operations for Delta Company 634th Battalion Support Brigade. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILGLW5 which was collected on a workbench in the maintenance bay had a lead concentration of 240 ug/ft^2. The Galva 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Galva Armory
Galva, Illinois
July 2, 2010

Analyte	ILGLW1 (ug/ft^2) Club Room - on Table	ILGLW2 (ug/ft^2) Kitchen – on Countertop	ILGLW3 (ug/ft^2) Dining Area – on Floor (Former IFR)
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILGLW4 (ug/ft^2) Vault – on Floor	ILGLW5 (ug/ft^2) Maintenance Bay – on Workbench	ILGLW6 (ug/ft^2) Field Blank
Lead	<91	**240**	ND
Cadmium	<9.1	20	ND
Chromium	<91	<91	ND

Note:
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**)

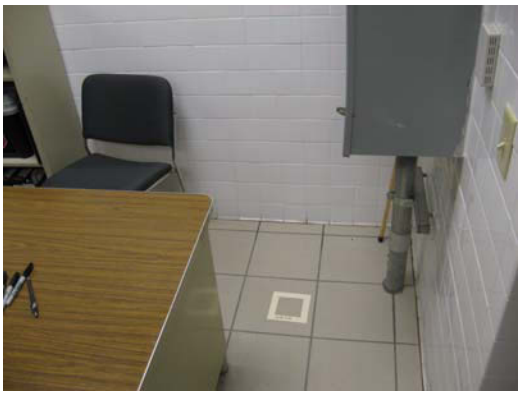
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

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

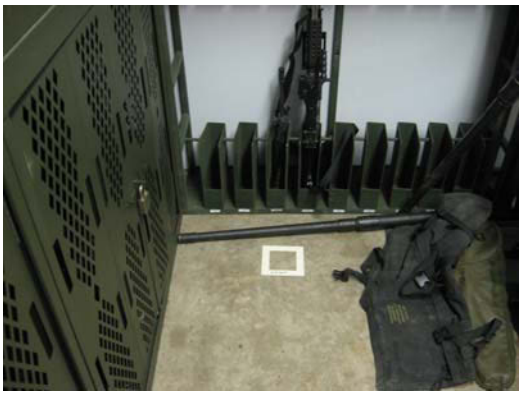
Figure 2 – Wipe Sample Locations (below)

Sample ILGLW1

Sample ILGLW2



Sample ILGLW3



Sample ILGLW4

Sample ILGW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Galva Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Galva Armory
Galva, Illinois
July 2, 2010

Location	Illumination (foot candles)
Room 103 Office	84
Room 104 Club Room	53
Latrine	36
Room 108 Training Office	89
Room 111 Office	73
Room 117 Classroom	47
Room 115 Copy Room	64
Room 109 Office	78
Room 110 Commander's Office	81
Room 112 Recruiter's Office	74
Locker Room	28
Supply Room	36
Vault	34
Drill Floor	33
Room 121 Classroom	34
Room 122 Dining Facility	32
Kitchen	30
Maintenance Bay	23

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Galva Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Galva, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9599
DFOH Lab Nos.:	TM-10-46467 through TM-10-46472
Date Received:	07/09/10
Data Analyzed:	07/13/10 through 07/14/10
Date Issued:	07/26/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGLW1	TM-10-46473	<10	<91
ILGLW2	TM-10-46474	<10	<91
ILGLW3	TM-10-46475	<10	<91
ILGLW4	TM-10-46476	<10	<91
ILGLW5	TM-10-46477	26	240
ILGLW6**	TM-10-46478	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGLW1	TM-10-46473	<1.0	<9.1
ILGLW2	TM-10-46474	<1.0	<9.1
ILGLW3	TM-10-46475	<1.0	<9.1
ILGLW4	TM-10-46476	<1.0	<9.1
ILGLW5	TM-10-46477	2.2	20
ILGLW6**	TM-10-46478	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILGLW1	TM-10-46473	<10	<91
ILGLW2	TM-10-46474	<10	<91
ILGLW3	TM-10-46475	<10	<91
ILGLW4	TM-10-46476	<10	<91
ILGLW5	TM-10-46477	<10	<91
ILGLW6**	TM-10-46478	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9599
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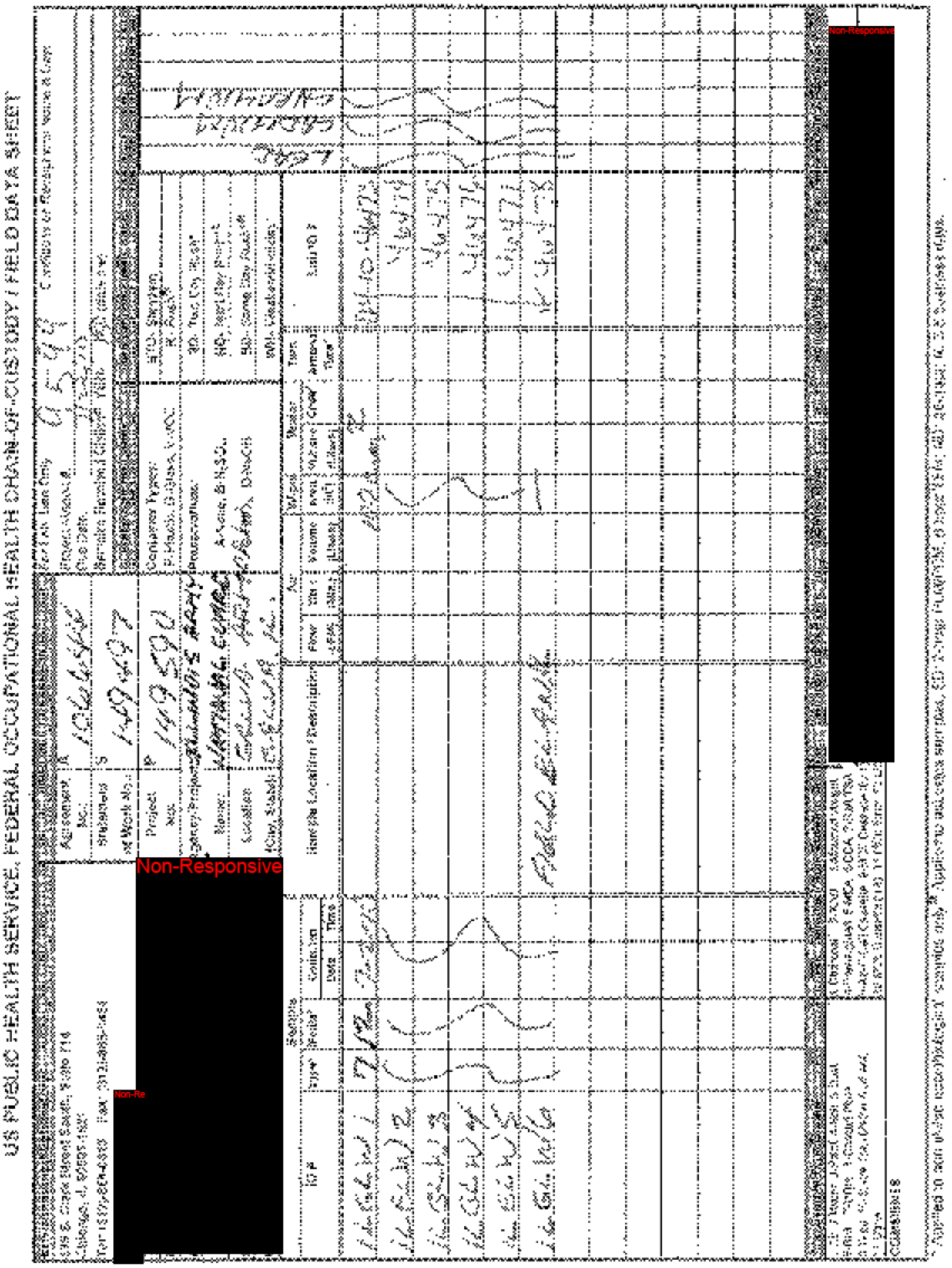

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Joliet Armory
2900 West Jefferson Street
Joliet, Illinois

Survey date: December 15, 2010

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

January 27, 2011

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Joliet Armory, located in Joliet, Illinois. 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 Joliet Armory was built in 1958. The facility has 47,987 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The Joliet Armory is the base of operations for Echo Company 634th BSB and Det. 1 Charlie 1-178th Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported no major vehicle maintenance is performed at the armory.

The Joliet Armory had an indoor firing range (IFR) that was closed about ten years ago and is now 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 may include basketball, baseball and softball practice for St. Francis College.

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.

Three samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. A sample collected on the floor of the locker room had a lead concentration of 452 ug/ft^2. The Joliet 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 Joliet Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, classroom and storage areas.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Three samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. A sample collected on the floor of the locker room had a lead concentration of 452 ug/ft^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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Joliet Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office, classroom, and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Joliet Armory, located in Joliet, Illinois. 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 December 15, 2010.

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.

IV. Site Description

The Joliet Armory was built in 1958. The facility has 47,987 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The Joliet Armory is the base of operations for Echo Company 634th BSB and Det. 1 Charlie 1-178th Infantry. During the week, most of the activities at the armory involve administrative work. Site personnel reported no major vehicle maintenance is performed at the armory. The Joliet Armory had an indoor firing range (IFR) that was closed about ten years ago and is now 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 may include basketball, baseball and softball practice for St. Francis College.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Joliet Armory

Figure 2 – Drill Floor - Joliet Armory

VI. Findings, Discussion, and Recommendations

The Joliet Armory is the base of operations for Echo Company 634th BSB and Det. 1 Charlie 1-178th Infantry. Site personnel reported no major vehicle maintenance is performed at the armory. The Joliet Armory had an indoor firing range that was closed about ten years ago and is now 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 may include basketball, baseball and softball practice for St. Francis College.

Surface Wipe Samples

Three samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILJOXW2 which was collected on the floor of the locker room (the location of the former IFR) had a lead concentration of 452 ug/ft^2. The Joliet 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Joliet Armory
Joliet, Illinois
December 15, 2010

Analyte	ILJOXW1 (ug/ft^2) Vault 2 - on Floor	ILJOXW2 (ug/ft^2) Locker Room (Former IFR) on Floor	ILJOXW3 ug/ft^2) Kitchen - on Countertop
Lead	<91	**452**	<91
Cadmium	<9.1	52	<9.1
Chromium	<91	<91	<91

Analyte	ILJOXW4 (ug/ft^2) Field Blank
Lead	ND
Cadmium	ND
Chromium	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

ILJOXW1

ILJOXW2

LJOXW3

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Joliet Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Joliet Armory
Joliet, Illinois
December 15, 2010

Location	Illumination (foot candles)
E Co. 634th BSB Office	90
Room 115	39
Latrine	24
Room 118	25
Room 119	38
Room 108	52
Room 107	56
Room 102	52
Break Room	38
Recruiter's Office	29
Room 162	65
Room 163	48
Room 158	58
Room 157	61
Room 154	41
Room 153	38
Room 152	13
Room 150	30
Vault 1	15
Supply Room	9
Room 143 Storage	28
Kitchen	74
Room 129	30
Locker Room	3-11
Weight Room	17
Room 121 – Classroom	60
Room 114 – Supply Room	14-42
Vault 2	25
Drill Floor	31

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, classroom 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Joliet Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Joliet, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9855
DFOH Lab Nos.:	TM-11-48499 through TM-11-48502
Date Received:	01/04/11
Data Analyzed:	01/06/11 – 01/07/11
Date Issued:	01/19/11

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILJOW1	TM-11-48499	<10	<91
ILJOW2	TM-11-48500	50	452
ILJOW3	TM-11-48501	<10	<91
ILJOW4**	TM-11-48502	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILJOW1	TM-11-48499	<1.0	<9.1
ILJOW2	TM-11-48500	5.7	52
ILJOW3	TM-11-48501	<1.0	<9.1
ILJOW4**	TM-11-48502	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILJOW1	TM-11-48499	<10	<91
ILJOW2	TM-11-48500	<10	<91
ILJOW3	TM-11-48501	<10	<91
ILJOW4**	TM-11-48502	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

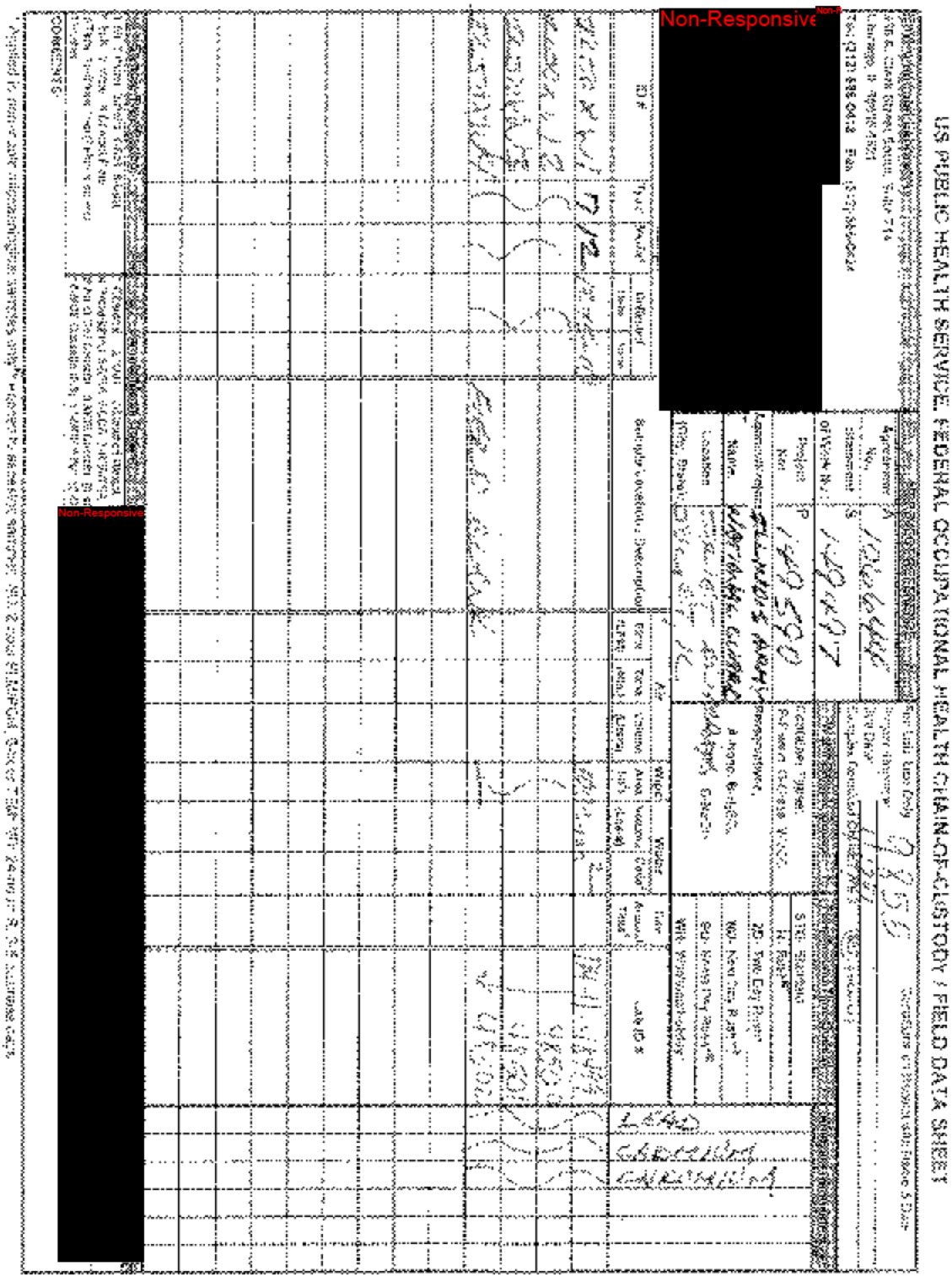
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive [redacted]

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9855
Page 2 of 2



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Joliet Armory
2900 W. Jefferson Street
Joliet, Illinois

Survey date: April 5, 2013

Performed by

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

June 1, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Joliet Armory, located in Joliet, Illinois. 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 Joliet Armory was built in 1958. The facility has 47,987 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The armory is the base of operations for Detachment 1 C Company 1st Battalion 178th Infantry; and the Illinois Department of Veterans Affairs. The Joliet Armory had a firing range 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 team practices for the University of St. Francis basketball and baseball teams.

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. Three of the surface wipe sample results exceeded the NGB surface wipe sampling guideline for lead. A sample collected on the floor in the vault had a lead concentration of 1,445 ug/ft^2. A sample collected in the locker room, in the center of the former IFR, had a lead concentration of 212 ug/ft^2. A sample collected in the locker room, at the bullet trap area in the former IFR, had a lead concentration of 624 ug/ft^2.

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^2. The Joliet 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 Joliet Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Joliet Armory, located in Joliet, Illinois. 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 April 5, 2013.

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

III. Site Description

The Joliet Armory was built in 1958. The facility has 47,987 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The armory is the base of operations for Detachment 1 C Company 1st Battalion 178th Infantry; and the Illinois Department of Veterans Affairs. 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 Joliet Armory had a firing range 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 team practices for the University of St. Francis basketball and baseball teams.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Joliet Armory

V. Findings, Discussion, and Recommendations

The Joliet Armory is the base of operations for Detachment 1 C Company 1st Battalion 178th Infantry; and the Illinois Department of Veterans Affairs. The Joliet Armory had a firing range 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 team practices for the University of St. Francis basketball and baseball teams.

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 guideline for lead is contained in Table 2.

Three of the surface wipe sample results exceeded the NGB guideline. Sample ILJOX21, which was collected on the floor in the vault had a lead concentration of 1,445 ug/ft^2. Sample ILJOX24, which was collected in the locker room, in the center of the former IFR, had a lead concentration of 212 ug/ft^2. Sample ILJOX25, which was collected in the locker room, at the bullet trap area in the former IFR, had a lead concentration of 624 ug/ft^2. 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^2.

The Joliet 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
Illinois Army National Guard
Joliet Armory
Joliet, Illinois
April 5, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Vault, on Floor	ILJOX21	**1,445**
Dining Room, on Floor	ILJOX22	<91
Drill Floor, Center	ILJOX23	<91
Locker Room, Former IFR, Center	ILJOX24	**212**
Locker Room, Former IFR, Bullet Trap	ILJOX25	**624**
Field Blank	ILJOX26	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 Guideline for Lead

Metal	Acceptable Surface Level ug/ft^2	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^2. (**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**)

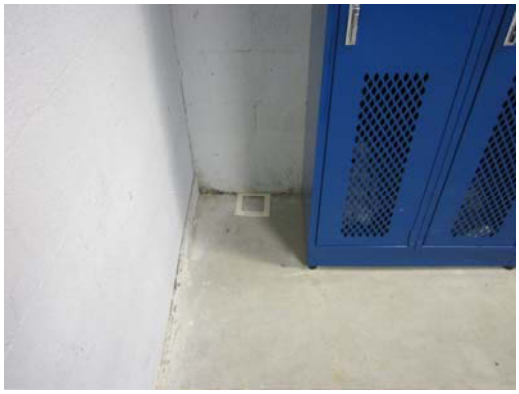
Figure 2 – Wipe Sample Locations (below)

Sample ILJOX21

Sample ILJOX22

Sample ILJOX23

Sample ILJOX24



Sample ILJOX25

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Joliet Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Joliet Armory
Joliet, Illinois
April 5, 2013

Location	Illumination (foot candles)
Maintenance Office	44-82
Room 148, Classroom	20-32
Room 152, Office	30-35
Room 153, Office	20-38
Room 154	19-33
Latrine	30-32
Room 162, Waiting Room	49-64
Foyer	7-8
Room 109, Office	58-88
Room 110, Office	32-68
Room 119, Orderly Room	29-58
Room 121, Classroom	30-48
Break Room	20-30
Women's Latrine	26-75
Room 114, Supply Room Office	36-41
Room 120, Supply Room	3-14
Drill Floor	34-66
Locker Room	23-33
Room 127, Weight Room	31-36
Room 139, Dining Room	28-35
Room 141, Kitchen	54-68
Room 140, Skullery	28-43
Room 129, Classroom	40-48
Mechanical Room	7-10
Room 150, Supply Room Office	43-56
Room 151, Supply Room Office	14-23
Vault 60	16-17

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Joliet Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Joliet, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 11032
DFOH Lab Nos.:	TM-13-60466 through TM-13-60471
Date Received:	04/09/13
Data Analyzed:	04/11/13 - 04/15/13
Date Issued:	04/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILJOX21	TM-13-60466	159	1445
ILJOX22	TM-13-60467	<10	<91
ILJOX23	TM-13-60468	<10	<91
ILJOX24	TM-13-60469	23	212
ILJOX25	TM-13-60470	69	624
ILJOX26**	TM-13-60471	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

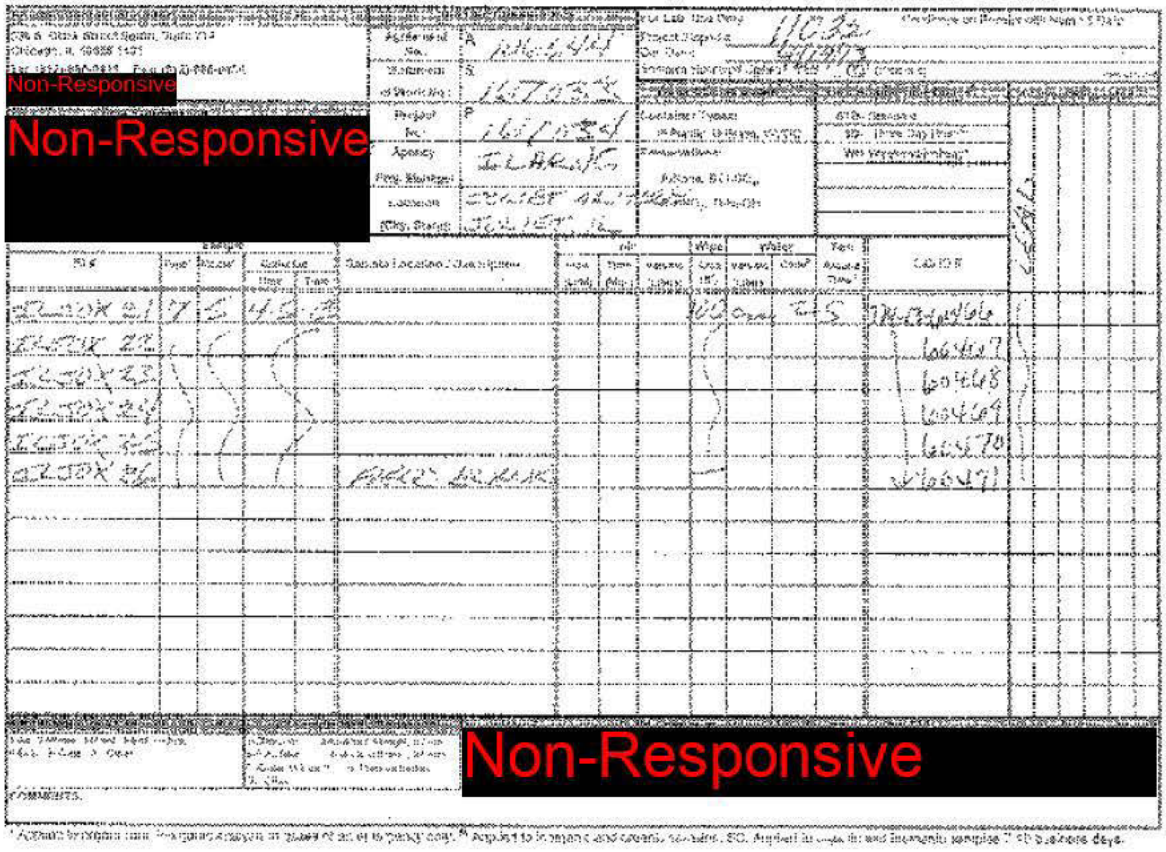
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11032
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Kankakee Armory
1191 East 4000 South Road
Kankakee, Illinois

Survey date: February 27, 2013

Performed by

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

March 30, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Kankakee Armory, located in Kankakee, Illinois. 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 Kankakee Armory was built in 1991, and it has 14,386 square feet of floor space. The armory is the base of operations for Company C 1st 178th Infantry Battalion and the Army Reserve Engineers 317th. 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 Kankakee Armory had an indoor firing range that was closed in 2010 and converted to 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: use as a polling place; and meetings of the Sammons Point Village Council, about once per month.

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. A sample collected in room 125A, the former indoor firing range, at the bullet trap area in the corner, had a lead concentration of 25,136 ug/ft^2. 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^2.

The 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 Kankakee Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Kankakee Armory, located in Kankakee, Illinois. 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 February 27, 2013.

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

III. Site Description

The Kankakee Armory was built in 1991, and it has 14,386 square feet of floor space. The armory is the base of operations for Company C 1st 178th Infantry Battalion and the Army Reserve Engineers 317th. 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 Kankakee Armory had an indoor firing range that was closed in 2010 and converted to 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: use as a polling place; and meetings of the Sammons Point Village Council, about once per month.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Kankakee Armory

V. Findings, Discussion, and Recommendations

The Kankakee Armory is the base of operations for Company C 1st 178th Infantry Battalion and the Army Reserve Engineers 317th. 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 Kankakee Armory had an indoor firing range 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.

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 ILKAW3, which was collected in room 125A, the former indoor firing range, at the bullet trap area in the corner, had a lead concentration of 25,136 ug/ft^2. 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^2.

The 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
Illinois Army National Guard
Kankakee Armory
Kankakee, Illinois
February 27, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Room 149, on Conference Table	ILKAW1	<91
Kitchen, on Counter Top	ILKAW2	<91
Room 125A, Former IFR, at Bullet Trap Area in Corner	ILKAW3	**25,136**
Drill Floor, on Floor	ILKAW4	185
Vault 1, on Floor	ILKAW5	109
Field Blank	ILKAW6	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^2	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^2. (**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 ILKAW1

Sample ILKAW2

Sample ILKAW3

Sample ILKAW4

Sample ILKAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kankakee Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Kankakee Armory
Kankakee, Illinois
February 27, 2013

Location	Illumination (foot candles)
Kitchen	34-36
Room 125A, Classroom (Former IFR)	15-19
Drill Floor	23-28
Room 130, Supply	3-55
Room 122, Janitor Storage	25-38
Boiler Room	13-82
Room 109, Classroom	20-32
Room 110, Computer Lab	21-24
Room 112, Office	10-14
Room 143, Latrine	36-45
Room 149, Office	27-35
Room 152, Supply	11-29
Vault #1	27-33
Room 140, Locker Room	28-44

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

Recommendation:

Increase illumination levels in 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

Illinois Army National Guard State Point of Contact

Non-Responsive
Industrial Hygiene Technician

Kankakee Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Kankakee, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10952
DFOH Lab Nos.:	TM-13-59857 through TM-13-59862
Date Received:	03/07/13
Data Analyzed:	03/08/13 - 03/11/13
Date Issued:	03/13/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10952
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-13-59857	<10	<91
ILKAW2	TM-13-59858	<10	<91
ILKAW3	TM-13-59859	2766	25136
ILKAW4	TM-13-59860	20	185
ILKAW5	TM-13-59861	12	109
ILKAW6**	TM-13-59862	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

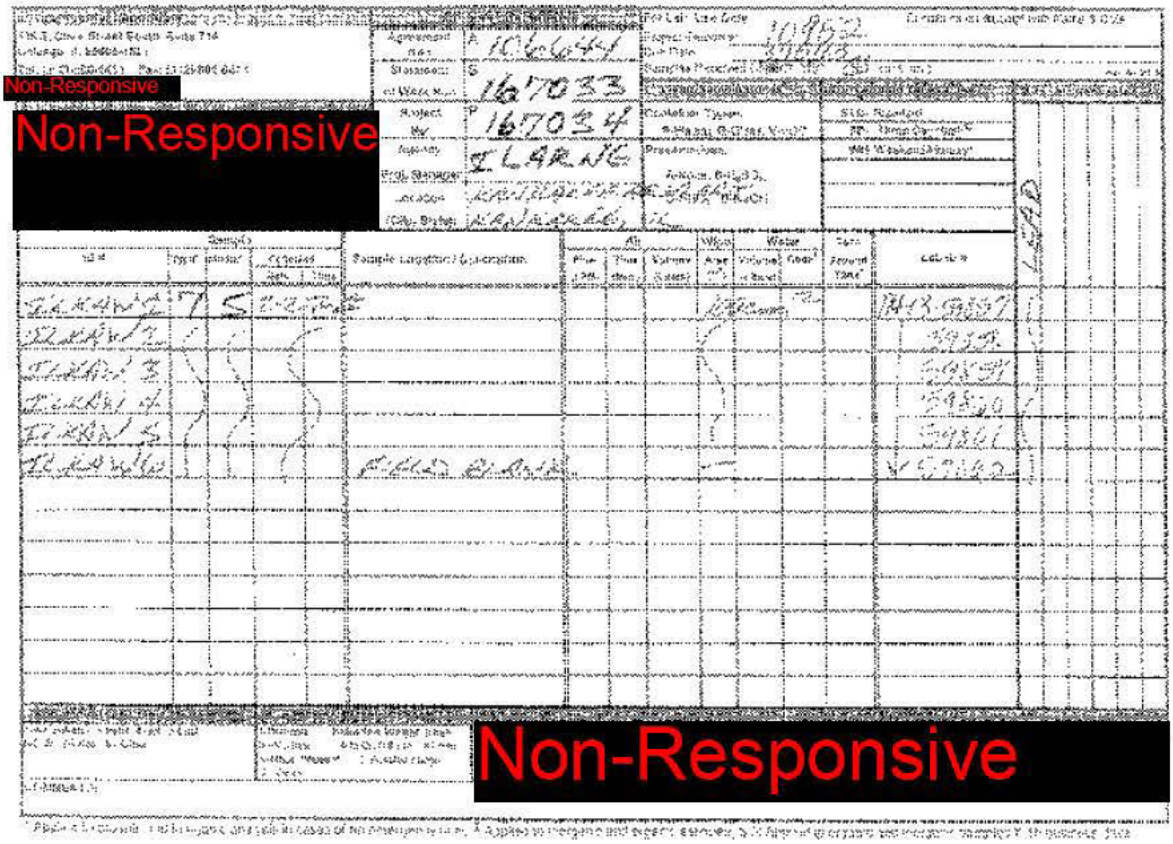
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Kankakee Armory
1191 East 400 South Road
Kankakee, Illinois

Survey date: June 30, 2010

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

November 12, 2010

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Kankakee Armory, located in Kankakee, Illinois. 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 Kankakee Armory was built in 1991. The facility has 14,386 square feet of floor space that encompasses an indoor firing range that has been closed, a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a concrete floor, concrete block walls that are 22 feet high and a sloped roof that is supported by exposed metal trusses. The office and classroom areas have carpeted floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer.

The Kankakee Armory is the base of operations for Charlie Company 178th Infantry, and the 317th Engineering 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 Kankakee Armory has an indoor firing range that has been closed. 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 use as a polling place and ASVAB test site.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILKAW4 which was collected on the floor of the former indoor firing range, in front of the area where the bullet trap had been located, had a lead concentration of 1,700 ug/ft^2.

Site personnel reported that the former indoor firing range may be converted to a dining hall and classroom. The indoor firing range should be decontaminated before it is converted to other uses. Follow up surface wipe sampling for lead should be performed after the lead decontamination is completed.

The Kankakee 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 Kankakee Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILKAW4 which was collected on the floor of the former indoor firing range, in front of the area where the bullet trap had been located, had a lead concentration of 1,700 ug/ft^2. Site personnel reported that the former indoor firing range may be converted to a dining hall and classroom.	The indoor firing range should be decontaminated before it is converted to other uses. Follow up surface wipe sampling for lead should be performed after the lead decontamination is completed. 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. 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.	2 2 4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Kankakee Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some offices and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Kankakee Armory, located in Kankakee, Illinois. 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 June 30, 2010.

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.

IV. Site Description

The Kankakee Armory was built in 1991. The facility has 14,386 square feet of floor space that encompasses an indoor firing range that has been closed, a drill floor, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a concrete floor, concrete block walls that are 22 feet high and a sloped roof that is supported by exposed metal trusses. The office and classroom areas have carpeted floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer.

The Kankakee Armory is the base of operations for Charlie Company 178th Infantry, and the 317th Engineering 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 Kankakee Armory has an indoor firing range that has been closed. 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 use as a polling place and ASVAB test site.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Kankakee Armory

VI. Findings, Discussion, and Recommendations

The Kankakee Armory is the base of operations for Charlie Company 178th Infantry, and the 317th Engineering Battalion. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. The armory has an indoor firing range that has been closed. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILKAW4 which was collected on the floor of the former indoor firing range, in front of the area where the bullet trap had been located, had a lead concentration of 1,700 ug/ft^2. Site personnel reported that the

former indoor firing range may be converted to a dining hall and classroom. The indoor firing range should be decontaminated before it is converted to other uses. Follow up surface wipe sampling for lead should be performed after the lead decontamination is completed.

The Kankakee 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Kankakee Armory
Kankakee, Illinois
June 30, 2010

Analyte	ILKAW1 (ug/ft^2) Room 149 – on Conference Table	ILKAW2 (ug/ft^2) Kitchen – on Vulcan Range	ILKAW3 (ug/ft^2) Drill Floor – on Floor, Center of Room
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILKAW 4 (ug/ft^2) IFR – on Floor at Bullet Trap	ILKAW 5 (ug/ft^2) Vault – on Floor	ILKAW 6 (ug/ft^2) Field Blank
Lead	**1700**	<91	ND
Cadmium	19	<9.1	ND
Chromium	<91	<91	ND

Note:
1) ug/ft^2= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant."
3) ND = None Detected

Recommendations:

1. The indoor firing range should be decontaminated before it is converted to other uses. (**RAC 2**)

2. Follow up surface wipe sampling for lead should be performed in the indoor firing range after the lead decontamination has been completed. (**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 4**)

4. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

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**)

Figure 2 – Wipe Sample Locations (below)

Sample ILKAW1

Sample ILKAW2

Sample ILKAW3

Sample ILKAW4

Sample ILKAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kankakee Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Kankakee Armory
Kankakee, Illinois
June 30, 2010

Location	Illumination (foot candles)
Room 149A Office	29
Room 149D Office	45
Room 149C Office	43
Room 152B Supply Office	71
Room 149E (Curtains Closed)	31
Room 149B Office	59
Drill Floor	11-23
Kitchen	24
Supply Room	15
Vault	21
Former IFR (Temp Lighting)	4-7
Janitors Room	20
Room 109 Classroom	29-43
Room 105 Storage	25
Room 106 Recruiting Office	41
Room 107 Office	28
Room 151 Recruiting Office	24
Room 152C Supply Room	10
Room 140 Locker Room	3

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
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

Illinois Army National Guard State Points of Contact

Non-Responsive

Non-Responsive
Industrial Hygiene Technician

Kankakee Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Kankakee, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9600
DFOH Lab Nos.:	TM-10-46467 through TM-10-46472
Date Received:	07/09/10
Data Analyzed:	07/13/10 through 07/14/10
Date Issued:	07/26/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-46479	<10	<91
ILKAW2	TM-10-46480	<10	<91
ILKAW3	TM-10-46481	<10	<91
ILKAW4	TM-10-46482	180	1700
ILKAW5	TM-10-46483	<10	<91
ILKAW6**	TM-10-46484	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-46479	<1.0	<9.1
ILKAW2	TM-10-46480	<1.0	<9.1
ILKAW3	TM-10-46481	<1.0	<9.1
ILKAW4	TM-10-46482	2.1	19
ILKAW5	TM-10-46483	<1.0	<9.1
ILKAW6**	TM-10-46484	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-46479	<10	<91
ILKAW2	TM-10-46480	<10	<91
ILKAW3	TM-10-46481	<10	<91
ILKAW4	TM-10-46482	<10	<91
ILKAW5	TM-10-46483	<10	<91
ILKAW6**	TM-10-46484	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9600
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Contact Information
Name: [redacted]
Non-Responsive

PROJECT REFERENCE

Agreement No.:	A 1066446
Statement of Work No.:	S 149497
Project No:	P 149590
Agency/Project Name:	ILLINOIS ARMY NATIONAL GUARD
Location (City, State):	KANKAKEE ARMORY KANKAKEE, IL

For Lab Use Only
Project /Report #: 9600
Due Date: 7/22/10
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date

Water Sample Codes[3]
Container Types:
P-Plastic, G-Glass, V-VOC
Preservatives:
A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes[1]
STD- Standard
R- Rush[@]
2D- Two Day Rush*
ND- Next Day Rush*[@]
SD- Same Day Rush*[@]
WH- Weekend/Holiday*

Analysis Requested
LEAD
CADMIUM
CHROMIUM

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (In²)	Water Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #
ILKAW1	7	12	6-30-10						100cm²				TM-10-46479
ILKAW2													46480
ILKAW3													46481
ILKAW4													46482
ILKAW5													46483
ILKAW6					FIELD BLANK								46484

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8-Contact Plate
9-Tape 10-Spore Trap (Zefon & others)
11-Other

Sample Media Codes[2]
1-Charcoal 2-XAD 3-Matched Weight
4-Preweighted 5-MEA 6-CCA 7-R2A/TSA
8-Air-O-Cell Cassette 9-MCE Cassette (0.
10-MCE Cassette (0.8) 11-MCE Filter 12-

Relinquished By	Date & Time	Received By	Date & Time
[redacted] Non-Responsive			

COMMENTS:

* Applied to non-viable microbiological samples only. @ Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Kedzie Armory
1551 North Kedzie Avenue
Chicago, Illinois

Survey date: March 18, 2010

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 15, 2010

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Kedzie Armory, located in Chicago, Illinois. 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 Kedzie Armory was built in 1940. The facility has 204,256 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and four weapons vaults. At the time of the survey, the Kedzie Armory was undergoing major renovations to the inside and outside of the armory.

The Kedzie Armory is the base of operations for the 244th Army Liaison Team, and the HHC of the 108th Sustainment Brigade. 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. Site personnel reported that the Kedzie Armory had a firing range that was closed between 8 and 10 years ago. Weapons are usually cleaned in front of the vaults.

The armory is available for rental for community activities. It was rented as a set for the movie "The Express". Community activities include JROTC drills and ceremonies twice a year and assemblies for homeless veteran about twice a year. The veterans are provided with showers, haircuts, medical exams, and Chicago Transit Authority transportation passes.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Two of the surface wipe sample results exceeded the above criteria. Sample ILKAW1 which was collected on the floor in the corner of weapons vault #2 had a lead concentration of 8,300 ug/ft^2 and a chromium concentration of 1,000 ug/ft^2. Sample ILKAW2 which was collected on the floor behind the bullet trap in the former firing range area had a lead concentration of 1,900 ug/ft^2.

The Kedzie 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 Kedzie 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.	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.	4
Two of the surface wipe sample results exceeded the above criteria. Sample ILKAW1 which was collected on the floor in the corner of weapons vault #2 had a lead concentration of 8,300 ug/ft^2 and a chromium concentration of 1,000 ug/ft^2. Sample ILKAW2 which was collected on the floor behind the bullet trap in the former firing range area had a lead concentration of 1,900 ug/ft^2.	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.	4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Kedzie 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Kedzie Armory, located in Chicago, Illinois. 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, 2010.

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.

IV. Site Description

The Kedzie Armory was built in 1940. The facility has 204,256 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and four weapons vaults. The drill floor has a wood floor and ceramic covered concrete block walls. The office and classroom areas have tile or carpeted floors, ceramic covered concrete block or plaster walls, and suspended or plaster ceilings. The exterior of the building is masonry. At the time of the survey, the Kedzie Armory was undergoing major renovations to the inside and outside of the armory.

The Kedzie Armory is the base of operations for the 244th Army Liaison Team, and the HHC of the 108th Sustainment Brigade. 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 Kedzie Armory had a firing range that was closed between 8 and 10 years ago. Weapons are usually cleaned in front of the vaults.

The armory is available for rental for community activities. It was rented as a set for the movie “The Express”. Community activities include JROTC drills and ceremonies twice a year and assemblies for homeless veteran about twice a year. The veterans are provided with showers, haircuts, medical exams, and Chicago Transit Authority transportation passes.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Kedzie Armory

VI. Findings, Discussion, and Recommendations

The Kedzie Armory is the base of operations for the 244th Army Liaison Team, and the HHC of the 108th Sustainment Brigade. 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 Kedzie Armory had a firing range that was closed between 8 and 10 years ago. Weapons are usually cleaned in front of the vaults.

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Two of the surface wipe sample results exceeded the above criteria. Sample ILKAW1 which was collected on the floor in the corner of weapons vault #2 had a lead concentration of 8,300 ug/ft^2 and a chromium concentration of 1,000 ug/ft^2. Sample ILKAW2 which was collected on the floor behind the bullet trap in the former firing range area had a lead concentration of 1,900 ug/ft^2.

The Kedzie 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Kedzie Armory
Chicago, Illinois
March 18, 2010

Analyte	ILKAW1 (ug/ft^2) Vault #2 – on Floor – in Corner	ILKAW2 (ug/ft^2) IFR Behind Bullet Trap	ILKAW3 (ug/ft^2) Kitchen Serving Cart
Lead	**8,300**	**1,900**	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	**1,000**	<91	<91

Analyte	ILKAW4 (ug/ft^2) Dining Room	ILKAW5 (ug/ft^2) Drill Floor	ILKAW6 (ug/ft^2) Field Blank
Lead	<91	<91	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILKAW1

Sample ILKAW2

Sample ILKAW3

Sample ILKAW4

Sample ILKAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kedzie Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Kedzie Armory
Chicago, Illinois
March 18, 2010

Location	Illumination (foot candles)
Vault #2	49
Vault #3	39
Vault #4	62
Vault #5	36
Vault #1	66
Basement Garage - in Front of Vaults	26
Basement Garage – Center	18
Room 132 – Office	52
Gym – Workout Room	25
Kitchen	44
Dining Hall	58
Drill Floor	43
Room 161 – Locker Room	36
Room 157 – Locker Room	39
Room 247 – Office	46
Room 235 – Office	63
Room 236 – Office	59
Room 318 – Office	78
Room 320 – Office	76
NCO Room	32
VTC Room	26

Table 3
Lighting Standards
ANSI Standard RP7 “Practice for Lighting” Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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**)

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. This survey was conducted by, and report written by Non-Responsive [redacted] CIH, CPE as a representative of Federal Occupational Health.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Kedzie Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Kedzie Armory ,Chicago, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9422
DFOH Lab Nos.:	TM-10-43934 through TM-10-43939
Date Received:	03/30/10
Data Analyzed:	04/02/10 through 04/08/10
Date Issued:	04/12/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium
Sampling Site: NGB: Kedzie Armory ,Chicago, IL
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 9422
DFOH Lab Nos.: TM-10-43934 through TM-10-43939
Date Received: 03/30/10
Data Analyzed: 04/02/10 through 04/08/10
Date Issued: 04/12/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-43934	910	8300
ILKAW2	TM-10-43935	210	1900
ILKAW3	TM-10-43936	<10	<91
ILKAW4	TM-10-43937	<10	<91
ILKAW5	TM-10-43938	<10	<91
ILKAW6**	TM-10-43939	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-43934	<1.0	<9.1
ILKAW2	TM-10-43935	<1.0	<9.1
ILKAW3	TM-10-43936	<1.0	<9.1
ILKAW4	TM-10-43937	<1.0	<9.1
ILKAW5	TM-10-43938	<1.0	<9.1
ILKAW6**	TM-10-43939	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILKAW1	TM-10-43934	120	1000
ILKAW2	TM-10-43935	<10	<91
ILKAW3	TM-10-43936	<10	<91
ILKAW4	TM-10-43937	<10	<91
ILKAW5	TM-10-43938	<10	<91
ILKAW6**	TM-10-43939	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9422
Page 2 of 2

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

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Non-Responsive

PROJECT REFERENCE

Agreement No.: A 106644
Statement of Work No.: S 149497
Project No: P 149590
Agency/Project Name: ILLINOIS ARMY NATIONAL GUARD
Location (City, State): KEDZIE ARMORY CHICAGO, IL

For Lab Use Only
Project /Report #: 94382
Due Date: 4/16/10
Samples Received Chilled? YES (NO) (circle one)
Conditions on Receipt with Name & Date

Water Sample Codes[1]
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes[4]
STD- Standard
R- Rush[@]
2D- Two Day Rush*
ND- Next Day Rush*[@]
SD- Same Day Rush*[@]
WH- Weekend/Holiday*

ID #	Type[1]	Media*	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in^2)	Wipe Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #	Analysis Requested
KEDZIE 1	T	3-PUF	3-18-10										43935	LEAD, CADMIUM, CHROMIUM
KEDZIE 2										100cm-2			43936	
KEDZIE 3													43937	
KEDZIE 4													43938	
KEDZIE 5										1			43939	
KEDZIE 6					FIELD BLANK									

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8-Contact Plate
9-Tape 10-Spore Trap (Zefon & others)
11-Other

Sample Media Codes[2]
1-Charcoal 2-XAD 3-Matched Weight
4-Preweighted 5-MEA 6-CCA 7-RZ/TSA
8-Air-O-Cell Cassette 9-MCE Cassette (0.
10-MCE Cassette (0.8) 11-MCE Filter 12-

Non-Responsive

COMMENTS:

* Applied to non-viable microbiological samples only @ Applied to asbestos samples. SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Kewanee Armory
111 N. East Street
Kewanee, Illinois

Survey date: November 15, 2012

Performed by

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

January 25, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Kewanee Armory, located in Kewanee, Illinois. 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 Kewanee Armory was built in 1954. The facility has about 41,213 square feet of floor space. The armory is the base of operations for the 2nd Squadron 106th Cavalry, the Department of Veteran`s Affairs, and the Recruit Command. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays. The Kewanee Armory had a firing range that was closed in 2002 and converted to a classroom and weight 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 may include: Blackhawk East College basketball and volleyball games; an annual high school basketball tournament; community walkers; annual health department flu shots; and a YMCA tumbling tournament every four years.

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 Kewanee 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 Kewanee Armory. Most of the areas surveyed met the minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Kewanee Armory, located in Kewanee, Illinois. 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 November 15, 2012.

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

III. Site Description

The Kewanee Armory was built in 1954. The facility has about 41,213 square feet of floor space. The armory is the base of operations for the 2nd Squadron 106th Cavalry, the Department of Veteran`s Affairs, and the Recruit Command. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays. The Kewanee Armory had a firing range that was closed in 2002 and converted to a classroom and weight 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 may include: Blackhawk East College basketball and volleyball games; an annual high school basketball tournament; community walkers; annual health department flu shots; and a YMCA tumbling tournament every four years.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Kewanee Armory

V. Findings, Discussion, and Recommendations

The armory is the base of operations for the 2nd Squadron 106th Cavalry, the Department of Veteran`s Affairs, and the Recruit Command. Site personnel reported that there are no maintenance bays. The Kewanee Armory had a firing range that was closed in 2002 and converted to a classroom and 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.

None of the surface wipe sample results exceeded the NGB criteria. The Kewanee 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
Area Wipe Sampling Results for Lead
Illinois Army National Guard
Kewanee Armory
Kewanee, Illinois
November 15, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Vault, on Gun Rack	ILA3W1	<91
Gym Floor, on Floor in Center	ILA3W2	<91
Storage Room, on Floor (Former IFR)	ILA3W3	<91
Kitchen, on Table	ILA3W4	<91
Dining Hall, on Table	ILA3W5	<91
Field Blank	ILA3W6	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^2	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 ILA3W1

Sample ILA3W2

Sample ILA3W3

Sample ILA3W4

Sample ILA3W5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Kewanee Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Kewanee Armory
Kewanee, Illinois
November 15, 2012

Location	Illumination (foot candles)
Dining Hall	70-76
Kitchen	60-67
Classroom 1	54-69
Classroom 2	56-69
Weight Room	19-22
Medic`s Office	68-74
Storage	22-38
Boiler Room	16-20
Blackhawk Locker Room	29-40
Gym	66-89
Locker Room, Senior NCO	20-36
OTC Office	63-74
S1	43-54
Veteran`s Affairs Office	42-55
Recruiter`s Office	33-48
HHT Office	58-61

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed met 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

Illinois Army National Guard State Points of Contact

Industrial Hygiene Technician
Non-Responsive

Kewanee Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Kewanee, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10805
DFOH Lab Nos.:	TM-13-58471 through TM-13-58476
Date Received:	11/26/12
Data Analyzed:	11/28/12 - 11/29/12
Date Issued:	11/29/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10805
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILA3W1	TM-13-58471	<10	<91
ILA3W2	TM-13-58472	<10	<91
ILA3W3	TM-13-58473	<10	<91
ILA3W4	TM-13-58474	<10	<91
ILA3W5	TM-13-58475	<10	<91
ILA3W6**	TM-13-58476	<10	None Detected

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

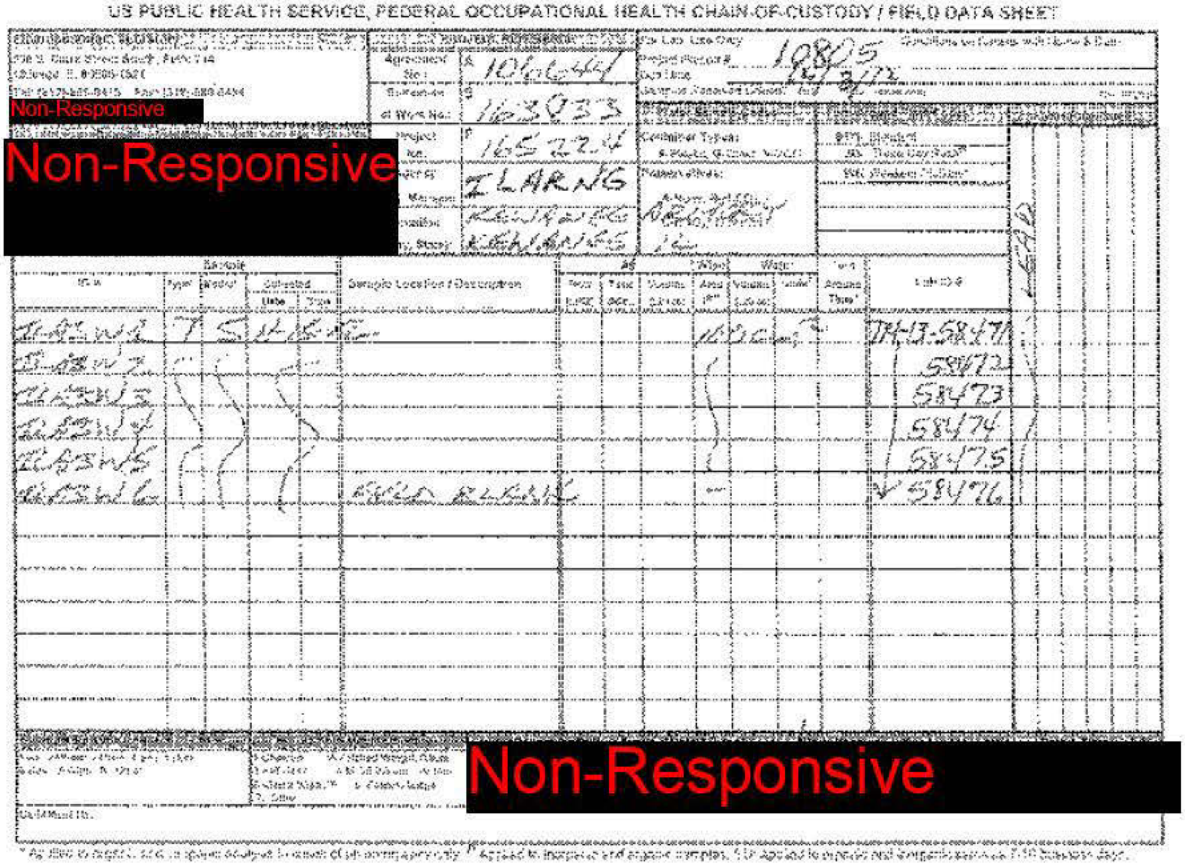
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10805
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Lawrenceville Armory
1522 Porter Avenue
Lawrenceville, Illinois

Survey date: December 13, 2012

Performed by

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

February 15, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Lawrenceville Armory, located in Lawrenceville, Illinois. 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 Lawrenceville Armory was built in 1936 and it has 28,808 square feet of floor space. The armory is the base of operations for the 631st Engineer Company. 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.

The Lawrenceville Armory had an indoor firing range (IFR) that was closed about twenty years ago and converted into 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 used as an exercise area by senior walkers from the community.

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; a visual inspection of suspect damaged asbestos containing materials; and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead. Two of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected on the floor in the vault had a lead concentration of 495 ug/ft^2. A sample collected on the floor in the rear of the locker room (near the former IFR bullet trap area) had a lead concentration of 3,814 ug/ft^2. The Lawrenceville 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. The armory should clean up the areas where lead contamination has been identified. 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 Lawrenceville Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

Damaged suspect asbestos containing materials (ACM) were observed in the basement storage room and boiler room. The damaged suspect ACM should be sampled and identified. Damaged ACM should be repaired or replaced by a qualified asbestos abatement company.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Lawrenceville Armory, located in Lawrenceville, Illinois. 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 December 13, 2012.

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

III. Site Description

The Lawrenceville Armory was built in 1936 and it has 28,808 square feet of floor space. The armory is the base of operations for the 631st Engineer Company. 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.

The Lawrenceville Armory had an indoor firing range (IFR) that was closed about twenty years ago and converted into 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 used as an exercise area by senior walkers from the community.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination; a visual inspection of suspect damaged asbestos containing materials; and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Lawrenceville Armory

V. Findings, Discussion, and Recommendations

The Lawrenceville Armory is the base of operations for the 631st Engineer Company. 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. The armory had a firing range that was closed twenty years ago and converted into a locker 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.

Two of the surface wipe sample results exceeded the NGB criteria. Sample ILLXW11, which was collected on the floor in the vault had a lead concentration of 495 ug/ft^2. Sample ILLXW14, which was collected on the floor in the rear of the locker room (near the former IFR bullet trap area) had a lead concentration of 3,814 ug/ft^2. The Lawrenceville 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. The armory should clean up the areas where lead contamination has been

identified. 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
Illinois Army National Guard
Lawrenceville Armory
Lawrenceville, Illinois
December 13, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Vault, on Floor	ILLXW11	**495**
Drill Floor, Center on Floor	ILLXW12	<91
Kitchen, on Range	ILLXW13	<91
Locker Room, on Floor at Former IFR Bullet Trap Area	ILLXW14	**3,814**
Outside of Locker Room, on Floor	ILLXW15	169
Field Blank	ILLXW16	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^2	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. Clean up the areas where lead contamination has been identified. (**RAC 2**)

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 ILLXW11

Sample ILLXW12

Sample ILLXW13

Sample ILLXW14

Sample ILLXW15

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Lawrenceville Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Lawrenceville Armory
Lawrenceville, Illinois
December 13, 2012

Location	Illumination (foot candles)
Basement, Locker Room – Former IFR	10-31
Basement Storage Room	5-61
Basement Boiler Room	5-13
Weight Room	20-26
Latrine and Shower	38-45
Platoon Room	36-40
Supply Room	18-22
Storage Room	15-23
Room 122B, Classroom	31-36
Commander's Office	30-32
Recruiter`s Office	15-28
Training NCO Office	22-49
Drill Floor	42-64
Administrative Office	12-56
Break Room	29-32
Supply Room, Room 134	10-20
Lobby	10-48
Shop – Garage	2-18
Maintenance Room	85-93
Kitchen	55-83
Stage – Classroom	14-22

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support and storage areas.

Recommendation:

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

Damaged Suspect Asbestos Containing Materials

Damaged suspect asbestos containing materials (ACM) were observed in the basement storage room and boiler room (Figures 3-6). The damaged suspect ACM should be sampled and identified. Damaged ACM should be repaired or replaced by a qualified asbestos abatement company.

Figure 3 - Damaged Pipe Insulation in Storage Room

Figure 4 - Damaged Pipe Insulation in Storage Room

Figure 5 - Pipe Insulation in Boiler Room

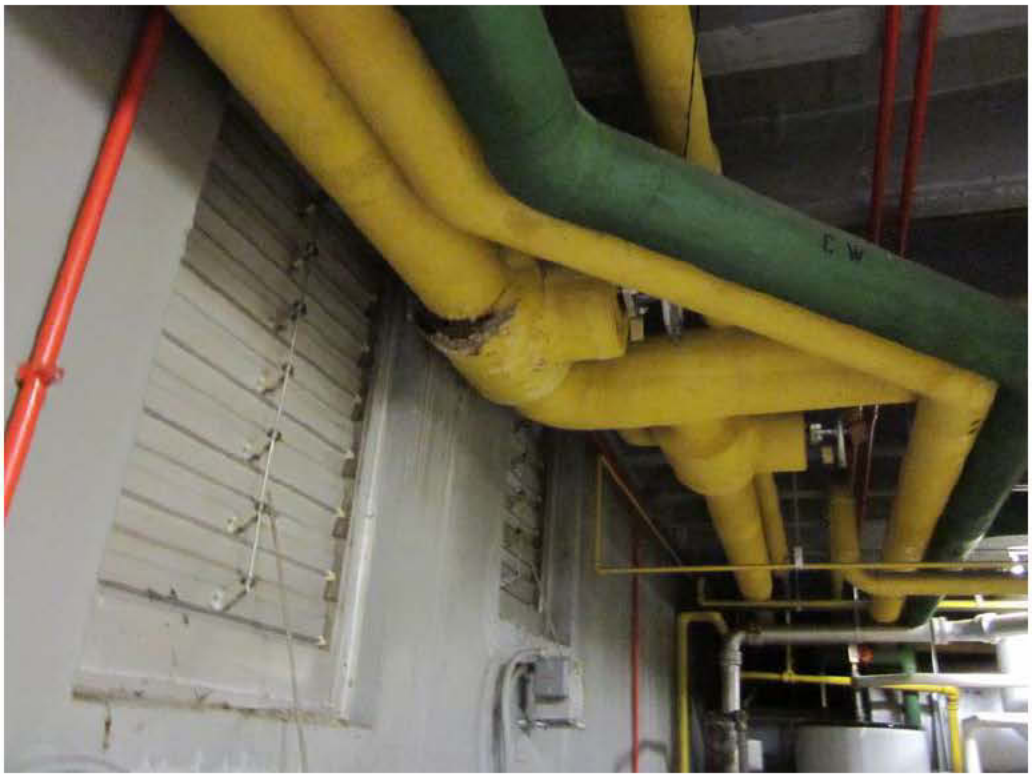

Figure 6 - Damaged Pipe Insulation in Boiler Room

Recommendation:

The damaged suspect ACM should be sampled and identified. Damaged ACM should be repaired or replaced by a qualified asbestos abatement company. (**RAC 2**)

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

Illinois Army National Guard State Points of Contact

Non-Responsive

[redacted]

Lawrenceville Armory Point of Contact

Non-Responsive

[redacted]

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Lawrenceville, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10859
DFOH Lab Nos.:	TM-13-58916 through TM-13-58921
Date Received:	12/20/12
Data Analyzed:	12/21/12 - 12/27/12
Date Issued:	01/03/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 10859
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILLXW11	TM-13-58916	55	495
ILLXW12	TM-13-58917	<10	<91
ILLXW13	TM-13-58918	<10	<91
ILLXW14	TM-13-58919	420	3814
ILLXW15	TM-13-58920	19	169
ILLXW16**	TM-13-58921	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

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Project 10859
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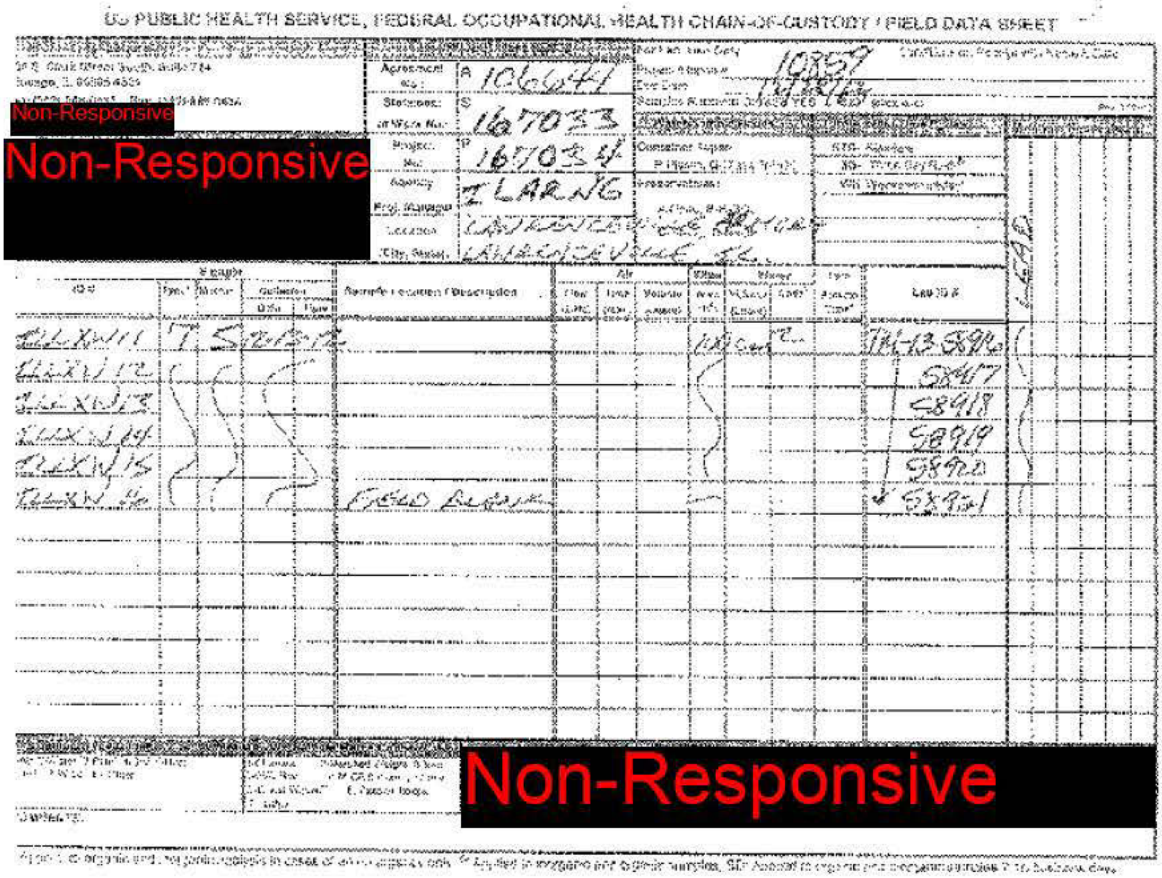

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Machesney Park Armory
10451 North Second Street
Machesney Park, Illinois

Survey date: November 13, 2012

Performed by

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

January 24, 2013

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C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Machesney Park Armory, located in Machesney Park, Illinois. 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 Machesney Park Armory was built in 1993, and has 53,500 square feet of floor space. The armory is the base of operations for the 135th Chemical Company, the Department of Veterans Affairs, the 33rd Brigade Special Troops Battalion, HHC 33rd Brigade Special Troops Battalion, and Charlie Company RSP. The armory may be used as a polling place. Site personnel reported that the Machesney Park Armory had an indoor firing range that was closed and converted to a supply room. Weapons are stored in three vaults, and they may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. The armory does not have a maintenance bay.

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 surface wipe samples were collected on representative surfaces in the facility and analyzed for lead. None of the sample results exceeded the NGB criteria for lead. The Machesney Park 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 armory. A few of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Machesney Park Armory, located in Machesney Park, Illinois. 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 November 13, 2012.

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

III. Site Description

The Machesney Park Armory was built in 1993, and has 53,500 square feet of floor space. The armory is the base of operations for the 135th Chemical Company, the Department of Veterans Affairs, the 33rd Brigade Special Troops Battalion, HHC 33rd Brigade Special Troops Battalion, and Charlie Company RSP. The armory may be used as a polling place.

Site personnel reported that the Machesney Park Armory had an indoor firing range that was closed and converted to a supply room. Weapons are stored in three vaults, and they may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. The armory does not have a maintenance bay.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Machesney Park Armory

V. Findings, Discussion, and Recommendations

The Machesney Park Armory is the base of operations for the 135th Chemical Company, the Department of Veterans Affairs, the 33rd Brigade Special Troops Battalion, HHC 33rd Brigade Special Troops Battalion, and Charlie Company RSP. The armory may be used as a polling place.

Site personnel reported that the Machesney Park Armory had an indoor firing range that was closed and converted to a supply room. Weapons are stored in three vaults, and they may be cleaned in the vaults, in the supply room, or on tables set up on the drill floor. The armory does not have a maintenance bay.

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for lead. The results are contained in Table 1. All of the sample results were below the limit of detection for lead. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for lead is contained in Table 2.

The Machesney Park 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 Wipe Sampling Results for Lead
Illinois Army National Guard
Machesney Park Armory
Machesney Park, Illinois
November 13, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Center of Assembly Hall on Floor	ILA1W1	<91
Kitchen on Range	ILA1W2	<91
Room 114A on Table Top	ILA1W3	<91
Supply Room on Floor (Former IFR)	ILA1W4	<91
Room 135, Vault on Floor	ILA1W5	<91
Field Blank	ILA1W6	ND

Note:
1) ug/ft^2= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant."
2) ND = None Detected

Table 2
NGB Surface Wipe Sampling Criteria for Lead

Metal	Acceptable Surface Level ug/ft^2	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 ILA1W1

Sample ILA1W2

Sample ILA1W3

Sample ILA1W4

Sample ILA1W5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Machesney Park Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Machesney Park Armory
Machesney Park, Illinois
November 13, 2012

Location	Illumination (foot candles)
Room 148 – Maintenance Office	22-38
Room 114A – Classroom	57-59
Room 120 – Kitchen	52-66
Room 139 – Office	65-73
Room 137 – Supply Room	16-34
Men`s Latrine	24-36
Room 147 – Mechanical	9-11
Room 162A – Classroom	54-70
Room 163 – HQ BSTB	70-79
Room 178 – Office	44-57
Room 175 – Office	48-64
Room 183 – Office	52-55
Room 123 – Assembly Hall	18-30

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

A few 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Machesney Park Armory Points of Contact

Non-Responsive
[redacted] – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Mackesney Park, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10808
DFOH Lab Nos.:	TM-13-58489 through TM-13-58494
Date Received:	11/26/12
Data Analyzed:	11/28/12 - 11/29/12
Date Issued:	11/29/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10808
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILA1W1	TM-13-58489	<10	<91
ILA1W2	TM-13-58490	<10	<91
ILA1W3	TM-13-58491	<10	<91
ILA1W4	TM-13-58492	<10	<91
ILA1W5	TM-13-58493	<10	<91
ILA1W6**	TM-13-58494	<10	None Detected

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

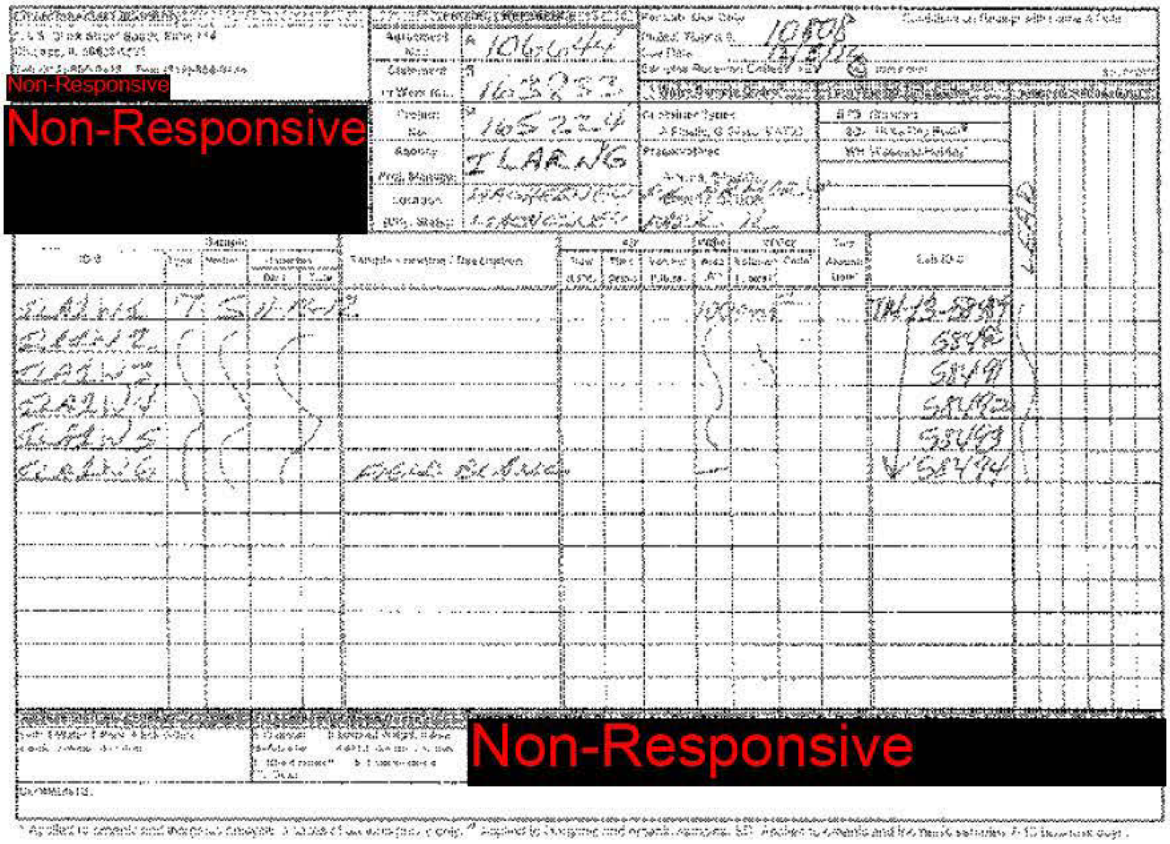
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10808
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Macomb Armory
135 W. Grant Street
Macomb, Illinois

Survey date: December 5, 2012

Performed by

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

January 27, 2013

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C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Macomb Armory, located in Macomb, Illinois. 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 Macomb Armory was built in 1954. The armory is the base of operations for Battery B 2nd Battalion 123rd Field Artillery, and HQ 44th Chemical Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the armory's maintenance bay may be used by FMS 21 mechanics to supplement their three bay shop. No vehicle maintenance was performed on the day of the survey. The Macomb Armory does not have a firing range. 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: grade school basketball games; a family readiness group; cookouts; and a Christmas party for children.

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 on a workbench in the maintenance bay had a lead concentration of 550 ug/ft^2. The Macomb 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 Macomb Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some support, maintenance bay, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Macomb Armory, located in Macomb, Illinois. 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 December 5, 2012.

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

III. Site Description

The Macomb Armory was built in 1954. The armory is the base of operations for Battery B 2nd Battalion 123rd Field Artillery, and HQ 44th Chemical Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the armory's maintenance bay may be used by FMS 21 mechanics to supplement their three bay shop. No vehicle maintenance was performed on the day of the survey. The Macomb Armory does not have a firing range. 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: grade school basketball games; a family readiness group; cookouts; and a Christmas party for children.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Macomb Armory

V. Findings, Discussion, and Recommendations

The Macomb Armory is the base of operations for Battery B 2nd Battalion 123rd Field Artillery, and HQ 44th Chemical Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that the armory's maintenance bay may be used by FMS 21 mechanics to supplement their three bay shop. No vehicle maintenance was performed on the day of the survey. The Macomb Armory does not have a firing range. 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 ILMBARW4, which was collected on a workbench in the maintenance bay had a lead concentration of 550 ug/ft^2. The Macomb 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
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
December 5, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Room 59 Vault, on Floor	ILMBARW1	<91
Break Room, on Counter Top	ILMBARW2	<91
Drill Floor, on Floor	ILMBARW3	<91
Maintenance Bay, on Workbench	ILMBARW4	**550**
Dining Room, on Table	ILMBARW5	<91
Field Blank	ILMBARW6	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^2	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 ILMBARW1

Sample ILMBARW2

Sample ILMBARW3

Sample ILMBARW4

Sample ILMBARW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Macomb Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
December 5, 2012

Location	Illumination (foot candles)
Room 551D, Military Funeral Honors Room	33-62
Break Room	47-51
Room 548D, Classroom	65-73
Room 546D, Classroom	44-88
Room 546, Office	71-80
Room 552D, Office	38-55
Conference Room	65-82
Drill Floor	70-105
Room 543D, Office	55-64
Fitness Room	19-30
Maintenance Bay	11-15
Dining Area	43-54
Kitchen	72-81
Locker Room	23-32

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some support, 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

Illinois Army National Guard State Points of Contact

Industrial Hygiene Technician
Non-Responsive

Macomb Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: Macomb, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 10829
DFOH Lab Nos.: TM-13-58701 through TM-13-58706
Date Received: 12/07/12
Data Analyzed: 12/13/12 - 12/14/12
Date Issued: 12/18/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

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Project 10829
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMBARW1	TM-13-58701	<10	<91
ILMBARW2	TM-13-58702	<10	<91
ILMBARW3	TM-13-58703	<10	<91
ILMBARW4	TM-13-58704	61	550
ILMBARW5	TM-13-58705	<10	<91
ILMBARW6**	TM-13-58706	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

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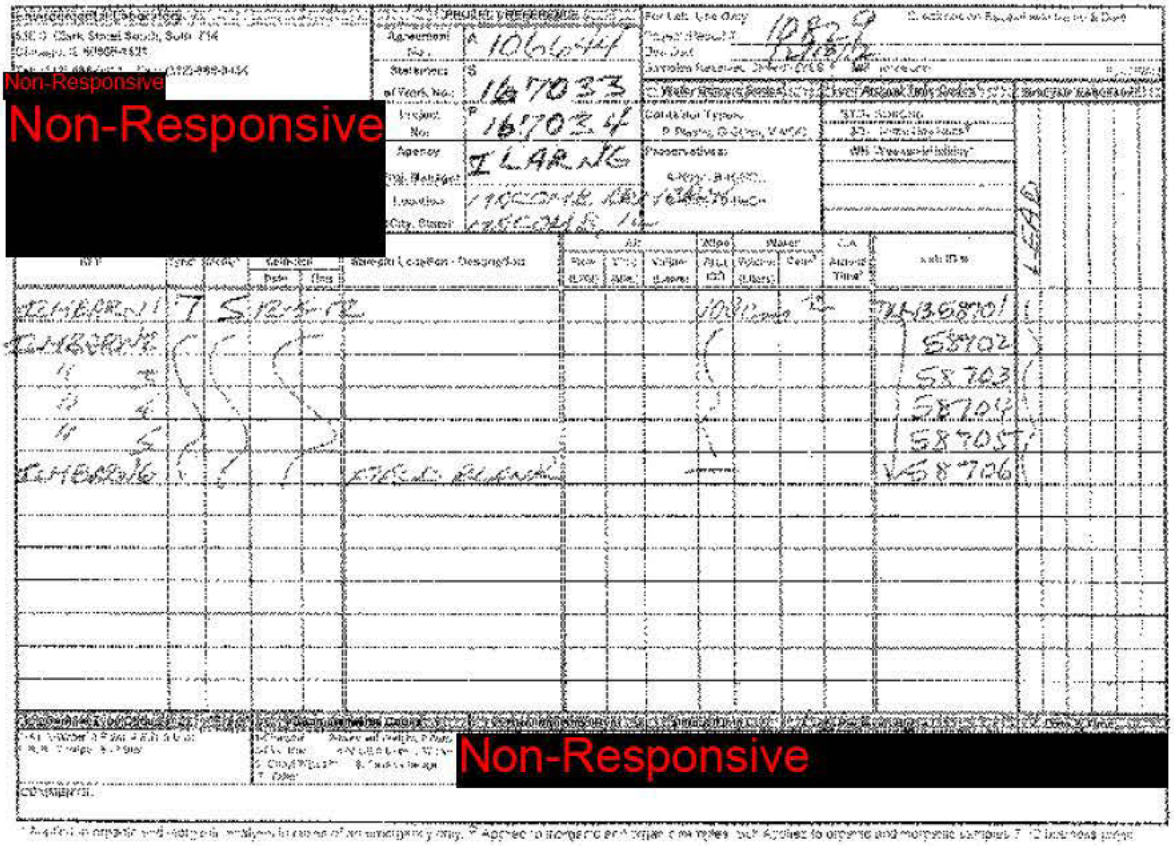
ACCREDITED LABORATORY

Project 10829
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Macomb Armory
135 West Grant Street
Macomb, Illinois

Survey date: July 1, 2010

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

November 11, 2010

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C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Macomb Armory, located in Macomb, Illinois. 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 Macomb Armory was built in 1954 and renovated in 2009. The facility has about 43,634 square feet of floor space that encompasses a distance learning lab, drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The armory is the base of operations for HHD 44th Chemical Battalion, Bravo Battery 2-123rd Field Artillery, Veterans Administration representatives, and family services personnel. 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 Macomb Armory had a firing range that is now closed. The firing range area was decontaminated and converted into a chow hall. 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 may include funerals and wakes for servicemen. On the day of the survey, a day care group was visiting the armory.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Macomb 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 Macomb 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria.	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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Macomb 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Macomb Armory, located in Macomb, Illinois. 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 July 1, 2100.

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.

IV. Site Description

The Macomb Armory was built in 1954 and renovated in 2009. The facility has about 43,634 square feet of floor space that encompasses a distance learning lab, drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The drill floor has a wood floor, concrete block walls that are twenty feet high and a gabled roof that is supported by exposed metal beams. The office and classroom areas have tile or carpet floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer.

The Macomb Armory is the base of operations for HHD 44th Chemical Battalion, Bravo Battery 2-123rd Field Artillery, Veterans Administration representatives, and family services personnel. 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 Macomb Armory had a firing range that is now closed. The firing range area was decontaminated and converted into a chow hall. 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 may include funerals and wakes for servicemen. On the day of the survey, a day care group was visiting the armory.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Macomb Armory

VI. Findings, Discussion, and Recommendations

The Macomb Armory is the base of operations for HHD 44th Chemical Battalion, Bravo Battery 2-123rd Field Artillery, Veterans Administration representatives, and family services personnel. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. The armory had a firing range that is now closed. The firing range area was decontaminated and converted into a chow hall. 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 three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Macomb

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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
July 1, 2010

Analyte	ILMAW1 (ug/ft^2) Drill Floor – on Floor next to Vault	ILMAW2 (ug/ft^2) Vault on Desktop	ILMAW3 (ug/ft^2) Kitchen Countertop
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILMAW4 (ug/ft^2) Chow Hall Dining Table	ILMAW5 (ug/ft^2) Orderly Room Conference Table	ILMAW6 (ug/ft^2) Field Blank
Lead	<91	<91	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILMAW1

Sample ILMAW2

Sample ILMAW3

Sample ILMAW4

Sample ILMAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Macomb Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Macomb Armory
Macomb, Illinois
July 1, 2010

Location	Illumination (foot candles)
Wash Rack	22
Drill Floor	38
Electrical Room	23
Medic Office	57
Supply Office	88
Chemical Classroom	80
S1 Office	79
S4 Office	71
Commander's Office	43
Break Room	35
Supply Room	38
Vault	33
Distance Learning Lab	66
Veteran's Affairs Office	75
Field Artillery Classroom	49
FA Break Room	47
FA Classroom 2	87
Kitchen	92
Chow Hall	49-77
Locker Room	30
Weight Room	28
Storage Room	28

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Macomb Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Macomb, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9604
DFOH Lab Nos.:	TM-10-46503 through TM-10-46508
Date Received:	0709/10
Data Analyzed:	07/17/10 through 07/23/10
Date Issued:	07/28/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMAW1	TM-10-46503	<10	<91
ILMAW2	TM-10-46504	<10	<91
ILMAW3	TM-10-46505	<10	<91
ILMAW4	TM-10-46506	<10	<91
ILMAW5	TM-10-46507	<10	<91
ILMAW6**	TM-10-46508	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMAW1	TM-10-46503	<1.0	<9.1
ILMAW2	TM-10-46504	<1.0	<9.1
ILMAW3	TM-10-46505	<1.0	<9.1
ILMAW4	TM-10-46506	<1.0	<9.1
ILMAW5	TM-10-46507	<1.0	<9.1
ILMAW6**	TM-10-46508	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMAW1	TM-10-46503	<10	<91
ILMAW2	TM-10-46504	<10	<91
ILMAW3	TM-10-46505	<10	<91
ILMAW4	TM-10-46506	<10	<91
ILMAW5	TM-10-46507	<10	<91
ILMAW6**	TM-10-46508	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9604
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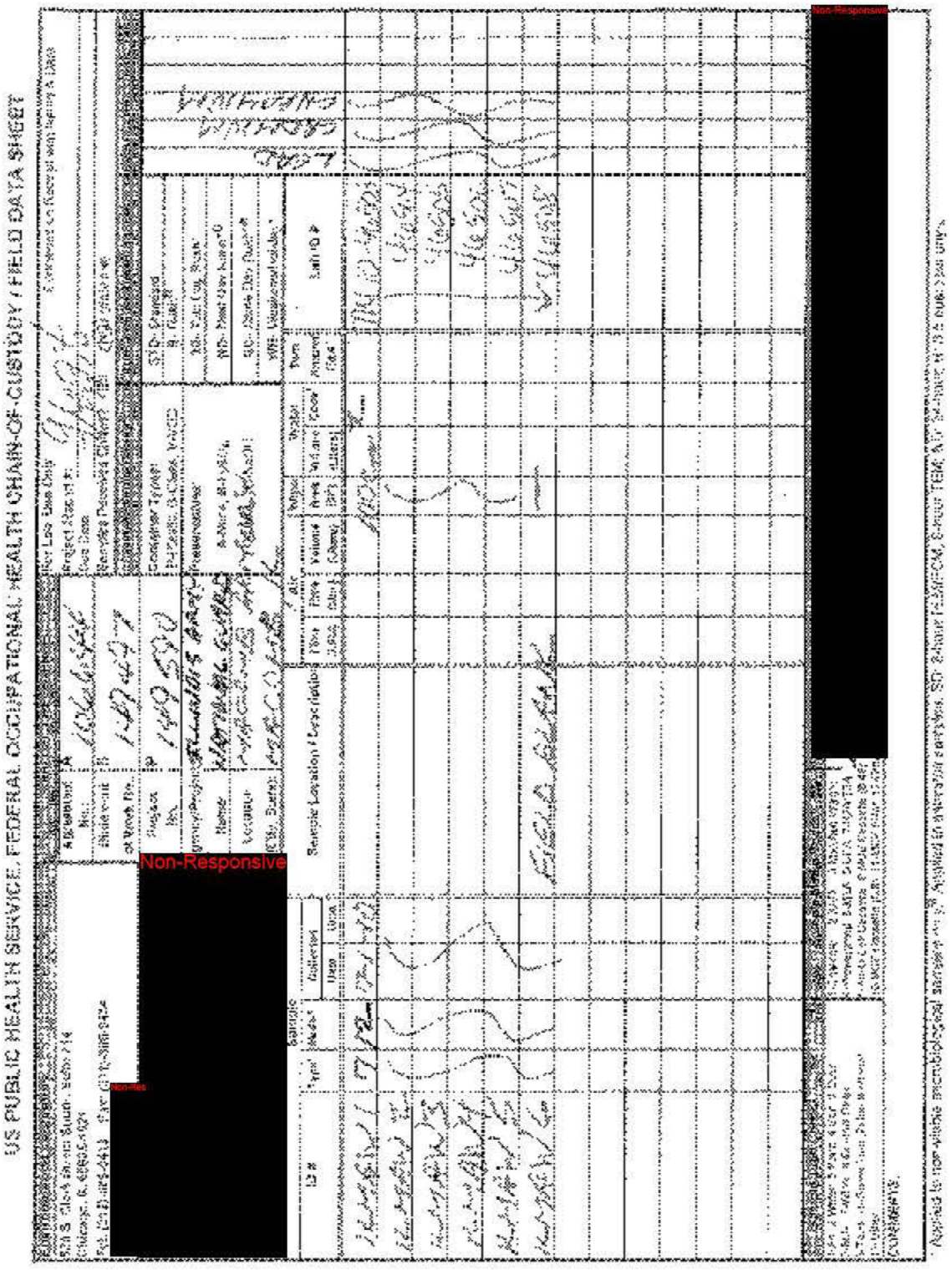

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Marion Armory
11427 Minute Man Road
Marion, Illinois

Survey date: November 3, 2010

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

January 3, 2011

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C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Marion Armory, located in Marion, Illinois. 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 Marion Armory was built in 1992. The facility has 38,304 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The Marion Armory is the base of operations for the 2nd Battalion 130th Infantry and RSP Team 12. During the week, most of the activities at the armory involve administrative work. No major vehicle maintenance is performed at the armory.

The Marion Armory had an indoor firing range that was closed and converted to a supply room. This supply room and both of the weapons vaults were locked and were not accessible on the day of the survey. 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 state police training in classrooms and dog obedience classes.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Marion 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 Marion Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria.	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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Marion Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Marion Armory, located in Marion, Illinois. 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 November 3, 2010.

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.

IV. Site Description

The Marion Armory was built in 1992. The facility has 38,304 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, latrines, supply room and two weapons vaults. The drill floor has a concrete floor, concrete block walls that are twenty two feet high and a sloped roof that is supported by exposed metal trusses. The office and classroom areas have carpet or tile floors, drywall walls and suspended ceilings. The exterior of the building is brick veneer.

The Marion Armory is the base of operations for the 2nd Battalion 130th Infantry and RSP Team 12. 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. Site personnel also reported that the Marion Armory had an indoor firing range that was closed and converted to a supply room. This supply room and both of the weapons vaults were locked and were not accessible on the day of the survey. 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 state police training in classrooms and dog obedience classes.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Marion Armory

VI. Findings, Discussion, and Recommendations

The Marion Armory is the base of operations for the 2nd Battalion 130th Infantry and RSP Team 12. 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. The Marion Armory had an indoor firing range that was closed and converted to a supply room. This supply room and both of the weapons vaults were locked and were not accessible on the day of the survey. 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 three heavy metals (lead, cadmium and chromium). All of the sample results were below the limit of detection for the metals. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. None of the surface wipe sample results exceeded the above criteria. The Marion 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Marion Armory
Marion, Illinois
November 3, 2010

Analyte	ILMRXW1 (ug/ft^2) Kitchen - on Countertop	ILMRXW2 (ug/ft^2) RSP Supply - on Floor Outside Door	ILMRXW3 (ug/ft^2) Room 133 - Floor in Front of Arms Vault
Lead	<91	<91	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILMRXW4 (ug/ft^2) Room 140 – Floor in Front of Arms Vault	ILMRXW5 (ug/ft^2) Drill Floor – On Floor in Center of Room	ILMRXW6 (ug/ft^2) Field Blank
Lead	<91	<91	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

ILMRXW1

ILMRXW2

ILMRXW3

ILMRXW4

ILMRXW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Marion Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Marion Armory
Marion, Illinois
November 3, 2010

Location	Illumination (foot candles)
Drill Floor	20-58
Room 107A	54
Room 106	62
Room 104 Conference Room	28
Room 112	66
Room 121B HHC Headquarters	15
Room 130	32
IT Server Room	11
Room 103B	45
Room 170	44
Room 150 – Men's Latrine	20
Room 159A – Weight Room	22
Room 163 – Distance Learning Lab	28
Room 161 – Classroom	25
Room 160 – Classroom	33
Room 131 – Funeral Honors	10
Room 140A – Supply Room	9
Room 143 – Kitchen	17
Room 145 – RSP Supply	3
Room 148 – Maintenance	11

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, 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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Marion Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Marion, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9813
DFOH Lab Nos.:	TM-11-48196 through TM-11-48201
Date Received:	11/22/10
Data Analyzed:	11/30/10
Date Issued:	12/02/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMRXW1	TM-11-48196	<10	<91
ILMRXW2	TM-11-48197	<10	<91
ILMRXW3	TM-11-48198	<10	<91
ILMRXW4	TM-11-48199	<10	<91
ILMRXW5	TM-11-48200	<10	<91
ILMRXW6	TM-11-48201		None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMRXW1	TM-11-48196	<1.0	<9.1
ILMRXW2	TM-11-48197	<1.0	<9.1
ILMRXW3	TM-11-48198	<1.0	<9.1
ILMRXW4	TM-11-48199	<1.0	<9.1
ILMRXW5	TM-11-48200	<1.0	<9.1
ILMRXW6	TM-11-48201		None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMRXW1	TM-11-48196	<10	<91
ILMRXW2	TM-11-48197	<10	<91
ILMRXW3	TM-11-48198	<10	<91
ILMRXW4	TM-11-48199	<10	<91
ILMRXW5	TM-11-48200	<10	<91
ILMRXW6	TM-11-48201		None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9813
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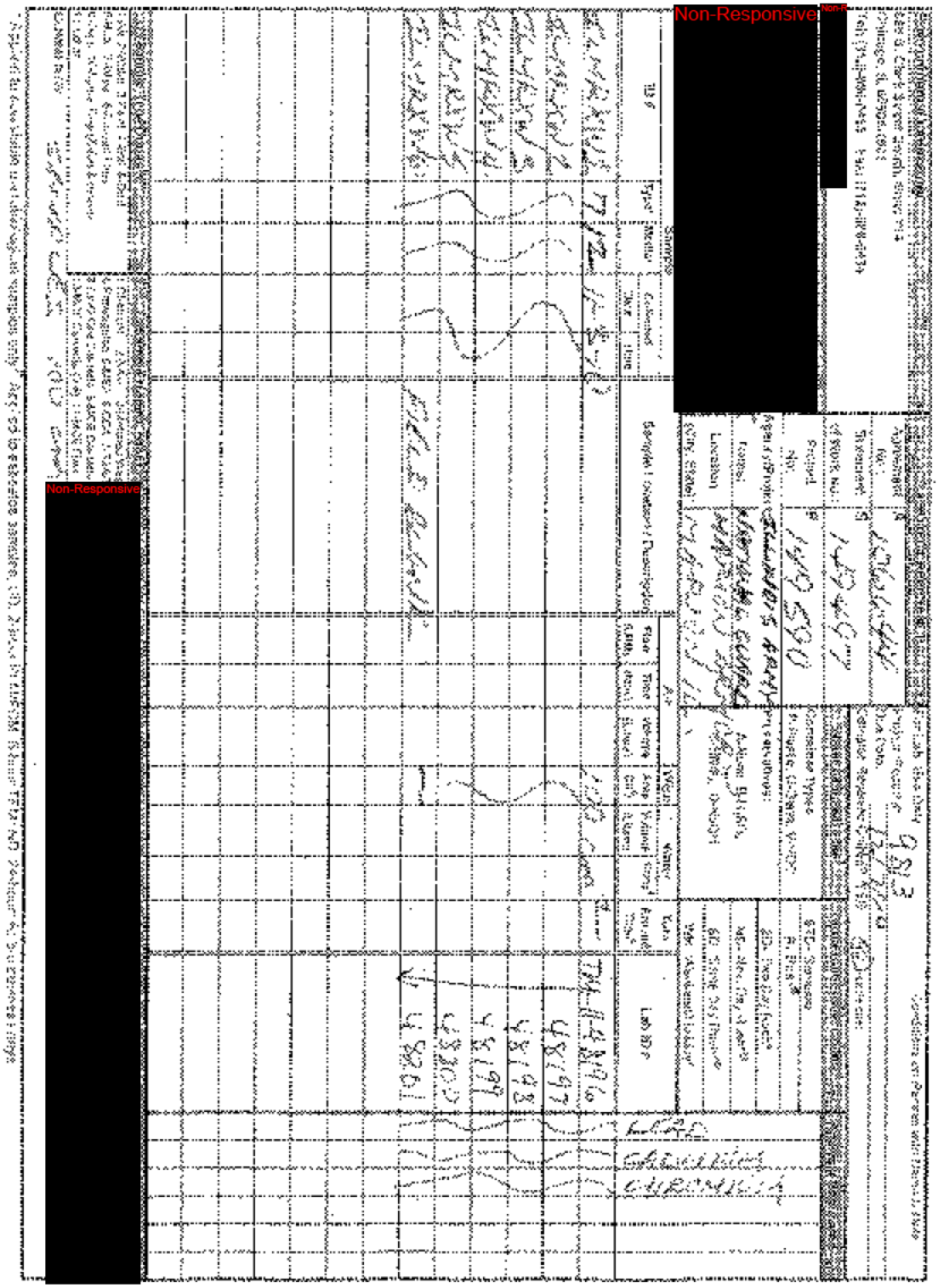

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Marion Armory
11427 Minuteman Road
Marion, Illinois

Survey date: December 12, 2012

Performed by

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

January 31, 2013

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B. Methodology and Assessment Criteria.

C. Laboratory Result Reports and Chain of Custody Sheets.

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I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Marion Armory, located in Marion, Illinois. 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 Marion Armory was built in 1993, and it has about 38,304 square feet of floor space. The armory is the base of operations for the 2nd Battalion 130th Infantry Regiment and N Company RSP. During the week, most of the activities at the armory involve administrative work. The Marion Armory had a firing range that has been closed and converted for use for electronic skills training. 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: Red Cross blood drives; Unit Christmas parties; dog obedience courses; and Civil Air Patrol 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. None of the surface wipe sample results exceeded the NGB criteria for lead. The Marion 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 Marion Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Marion Armory, located in Marion, Illinois. 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 December 12, 2012.

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

III. Site Description

The Marion Armory was built in 1993, and it has about 38,304 square feet of floor space. The armory is the base of operations for the 2nd Battalion 130th Infantry Regiment and N Company RSP. During the week, most of the activities at the armory involve administrative work. The Marion Armory had a firing range that has been closed and converted for use for electronic skills training (Engagement Skills Training Room 155B). 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: Red Cross blood drives; Unit Christmas parties; dog obedience courses; and Civil Air Patrol meetings.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Marion Armory

V. Findings, Discussion, and Recommendations

The Marion Armory is the base of operations for the 2nd Battalion 130th Infantry Regiment and N Company RSP. During the week, most of the activities at the armory involve administrative work. 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: Red Cross blood drives; Unit Christmas parties; dog obedience courses; and Civil Air Patrol 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.

None of the surface wipe sample results exceeded the NGB criteria. The Marion 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
Illinois Army National Guard
Marion Armory
Marion, Illinois
December 12, 2012

Location	Sample Number	Lead Concentration (ug/ft^2)
Vault, on Safe	ILMRXW11	<91
Drill Floor, in Center on Floor	ILMRXW12	<91
Kitchen, on Serving Table	ILMRXW13	<91
EST Training Room, on Floor (Former IFR Firing Line Area)	ILMRXW14	<91
RSP Supply Room, on Floor (Former IFR Bullet Trap Area)	ILMRXW15	<91
Field Blank	ILMRXW16	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^2	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**)

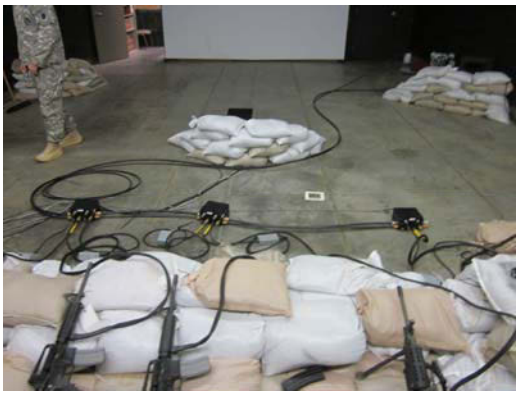
3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILMRXW11

Sample ILMRXW12

Sample ILMRXW13



Sample ILMRXW14

Sample ILMRXW15

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Marion Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Marion Armory
Marion, Illinois
December 12, 2012

Location	Illumination (foot candles)
Room 108, Office	63-67
Room 104, Commons	23-27
Room 103B, Conference Room	37-44
Room 159B, PT Room	31-42
Room 163, Computer Lab	26-34
Room 161B, Classroom	36-50
Room 160B, Classroom	29-50
Room 143, Kitchen	15-34
Room 136, Office	9-16
Room 134, Storage	2-3
Drill Floor	21-36

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Marion Armory Point of Contact

Non-Responsive POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data:	Lead
Sampling Site:	NGB: Marion, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10841
DFOH Lab Nos.:	TM-13-58795 through TM-13-58800
Date Received:	12/13/12
Data Analyzed:	12/17/12 - 12/18/12
Date Issued:	12/20/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP LLC

Project 10841
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FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILMRXW11	TM-13-58795	<10	<91
ILMRXW12	TM-13-58796	<10	<91
ILMRXW13	TM-13-58797	<10	<91
ILMRXW14	TM-13-58798	<10	<91
ILMRXW15	TM-13-58799	<10	<91
ILMRXW16**	TM-13-58800	<10	

Surface Wipe Sampling Criteria

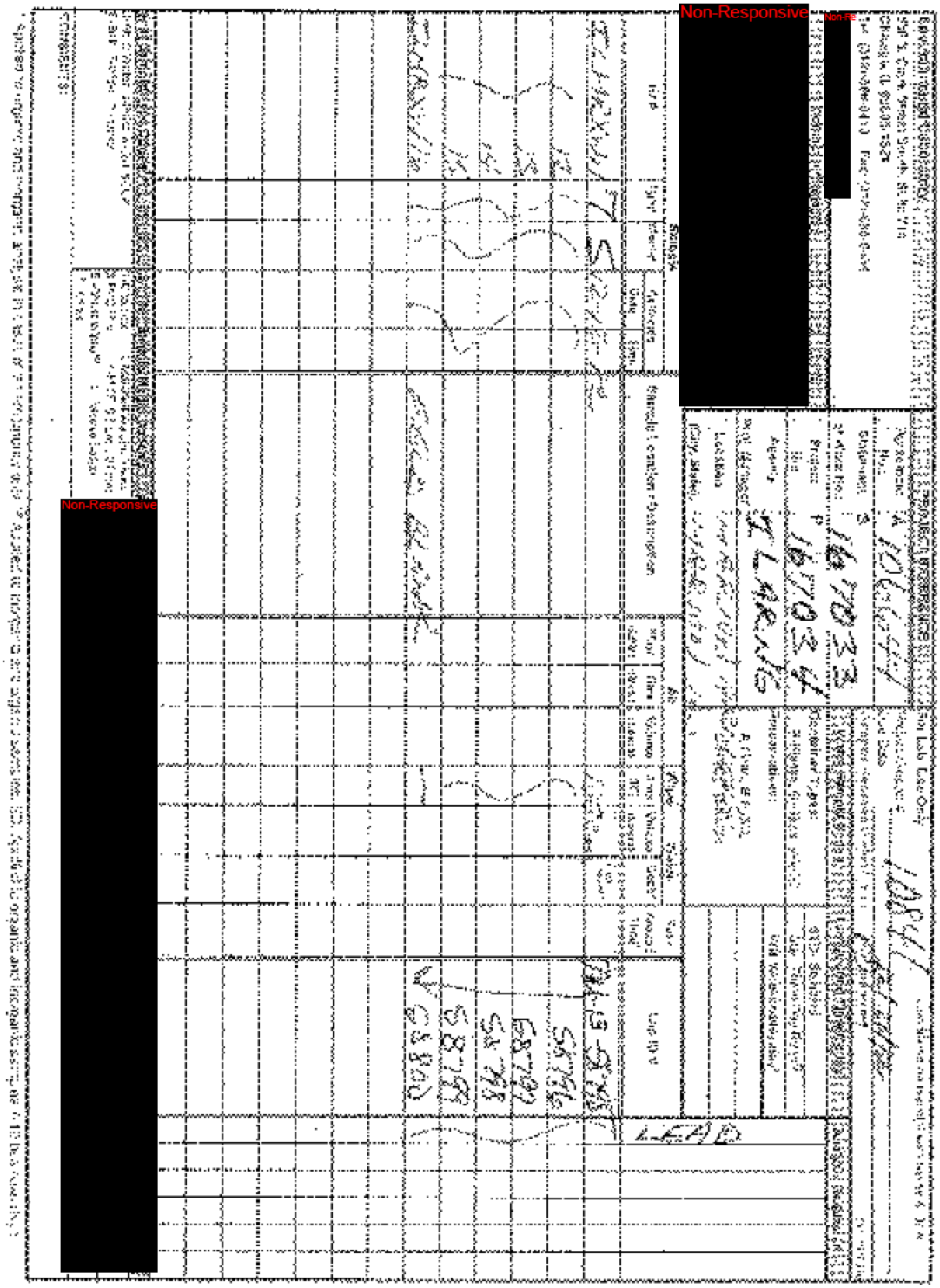
Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

PJLA LAP, LLC



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Marseilles Armory
1450 Army Road
Marseilles, Illinois

Survey date: November 20, 2012

Performed by

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

January 25, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Marseilles Armory, located in Marseilles, Illinois. 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 Marseilles Armory was built in 1986. The facility has 23,000 square feet of floor space. The armory is the base of operations for the A Company 33rd BSTB Engineers, G Company RSP Gladiators, and the area facilities maintenance team. During the week, most of the activities at the armory involve administrative work. The Marseilles Armory had an indoor firing range that was closed in 1987. Site personnel reported that the armory is not used for 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. None of the surface wipe sample results exceeded the NGB criteria for lead. The Marseilles 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 Marseilles Armory. Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some support and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Marseilles Armory, located in Marseilles, Illinois. 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 November 20, 2012.

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

III. Site Description

The Marseilles Armory was built in 1986. The facility has 23,000 square feet of floor space. The armory is the base of operations for the A Company 33rd BSTB Engineers, G Company RSP Gladiators, and the area facilities maintenance team. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays and that no vehicle maintenance is performed at the armory.

The Marseilles Armory had an indoor firing range that was closed in 1987. 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 used for community activities.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Marseilles Armory

V. Findings, Discussion, and Recommendations

The armory is the base of operations for the A Company 33rd BSTB Engineers, G Company RSP Gladiators, and the area facilities maintenance team. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays and that no vehicle maintenance is performed at the armory.

The Marseilles Armory had an indoor firing range that was closed in 1987. 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 used for community activities.

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 Marseilles 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
Illinois Army National Guard
Marseilles Armory
Marseilles, Illinois
November 20, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Conference Room, on Table	ILA4W1	<91
Classroom (Former IFR) on floor at previous bullet trap area	ILA4W2	<91
Kitchen, on Range	ILA4W3	<91
Vault, on Gun Rack	ILA4W4	135
Drill Floor, on Floor in Center of Room	ILA4W5	<91
Field Blank	ILA4W6	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^2	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 ILA4W1

Sample ILA4W2

Sample ILA4W3

Sample ILA4W4

ILA4W5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Marseilles Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Marseilles Armory
Marseilles, Illinois
November 20, 2012

Location	Illumination (foot candles)
Room 133, Conference Room	69-71
Room 132, Classroom	48-81
Room 130, Office	37-63
Room 127, Supply	131-160
Room 126, Facility Maintenance	19-27
Room 125, Custodial	19-21
Classroom, Former IFR	72-89
Drill Floor	15-26
Locker Room	20-22
Men`s Latrine	35-48
Kitchen	17-64
Kiosk Room	22-45

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some support 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

Illinois Army National Guard State Points of Contact

Industrial Hygiene Technician
Non-Responsive

Marseilles Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Marseilles, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10807
DFOH Lab Nos.:	TM-13-58483 through TM-13-58488
Date Received:	11/26/12
Data Analyzed:	11/28/12 - 11/29/12
Date Issued:	11/29/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILA4W1	TM-13-58483	<10	<91
ILA4W2	TM-13-58484	<10	<91
ILA4W3	TM-13-58485	<10	<91
ILA4W4	TM-13-58486	15	135
ILA4W5	TM-13-58487	<10	<91
ILA4W6**	TM-13-58488	<10	None Detected

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

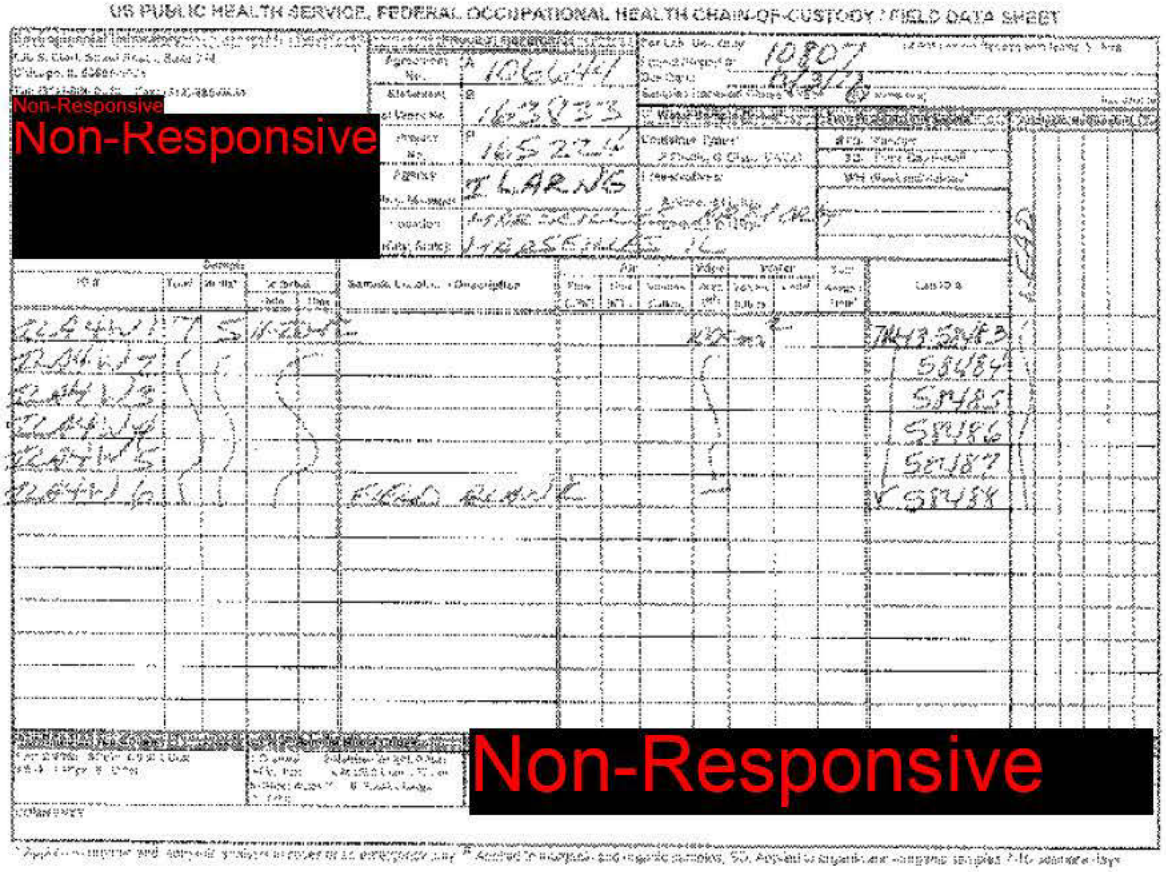
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10807
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
North Riverside Armory
8660 West Cermak Road
North Riverside, Illinois

Survey date: April 5, 2013

Performed by

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

June 1, 2013

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A. Point of Contact (POC) List.

B. Methodology and Assessment Criteria.

C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, North Riverside Armory, located in North Riverside, Illinois. 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 North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for HQ 108th MMB; HHD 108th MMB; 3625th MT Company; 1244th Transportation Company; 405th BSB, and the 406th Signal Company. 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.

The North Riverside Armory had an indoor firing range that was closed and converted to a weight room and computer learning lab. 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 Lincoln Challenge for at risk teens; family readiness functions; and job fairs.

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 guideline for lead. A sample collected on the floor in vault 2 had a lead concentration of 357 ug/ft^2. The North Riverside 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 North Riverside Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, North Riverside Armory, located in North Riverside, Illinois. 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 April 5, 2013.

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

III. Site Description

The North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for HQ 108th MMB; HHD 108th MMB; 3625th MT Company; 1244th Transportation Company; 405th BSB, and the 406th Signal Company. 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. The North Riverside Armory had an indoor firing range that was closed and converted to a weight room and computer learning lab. 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 Lincoln Challenge for at risk teens; family readiness functions; and job fairs.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – North Riverside Armory

V. Findings, Discussion, and Recommendations

The North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. 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. The North Riverside Armory had an indoor firing range that was closed and converted to a weight room and computer learning lab. 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 Lincoln Challenge for at risk teens; family readiness functions; and job fairs.

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 guideline for lead is contained in Table 2.

One of the surface wipe sample results exceeded the NGB guideline. Sample ILNRW21, which was collected on the floor in vault 2 had a lead concentration of 357 ug/ft^2. The North Riverside 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
Illinois Army National Guard
North Riverside Armory
North Riverside, Illinois
April 5, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Vault 2, on Floor	ILNRW21	**357**
Kitchen, on Counter	ILNRW22	<91
Drill Floor, Center	ILNRW23	<91
Weight Room, Former IFR, Near Firing Line	ILNRW24	<91
Distance Learning Lab, Former IFR, at Bullet Trap	ILNRW25	<91
Field Blank	ILNRW26	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 Guideline for Lead

Metal	Acceptable Surface Level ug/ft^2	Basis for Criteria
Lead	200	NG Pam 420-15

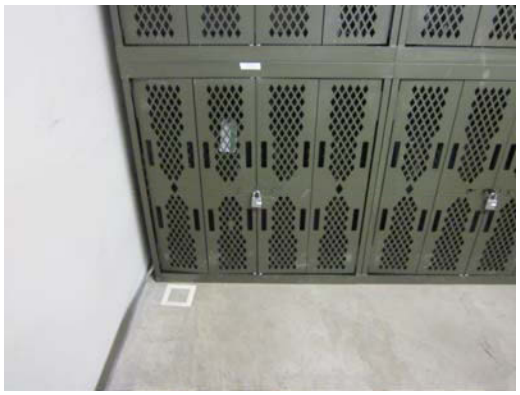
Recommendations:

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 ILNRW21

Sample ILNRW22

Sample ILNRW23

Sample ILNRW24

Sample ILNRW25

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the North Riverside Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
North Riverside Armory
North Riverside, Illinois
April 5, 2013

Location	Illumination (foot candles)
Room 180C	21-42
Room 164, Office	25-28
Room 162, Supply	9-19
Room 163, Vault	10-30
Room 158, Office	33-43
Room 156, Supply	26-94
Distance Learning Lab	19-43
Room 173, Office	19-29
Room 235A, Classroom	40-46
Room 144, Kitchen	10-34
Weight Room	16-17
Drill Floor	15-23
Room 203, Locker Room	1-23
Room 205, Classroom	39-58
Room 138, Offices	23-49
Room 138, Offices – Task Lights	80-95

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

North Riverside Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: North Riverside, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 11034
DFOH Lab Nos.:	TM-13-60478 through TM-13-60483
Date Received:	04/09/13
Data Analyzed:	04/11/13 - 04/15/13
Date Issued:	04/16/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILNRW21	TM-13-60478	39	357
ILNRW22	TM-13-60479	<10	<91
ILNRW23	TM-13-60480	<10	<91
ILNRW24	TM-13-60481	<10	<91
ILNRW25	TM-13-60482	<10	<91
ILNRW26**	TM-13-60483	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft²	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

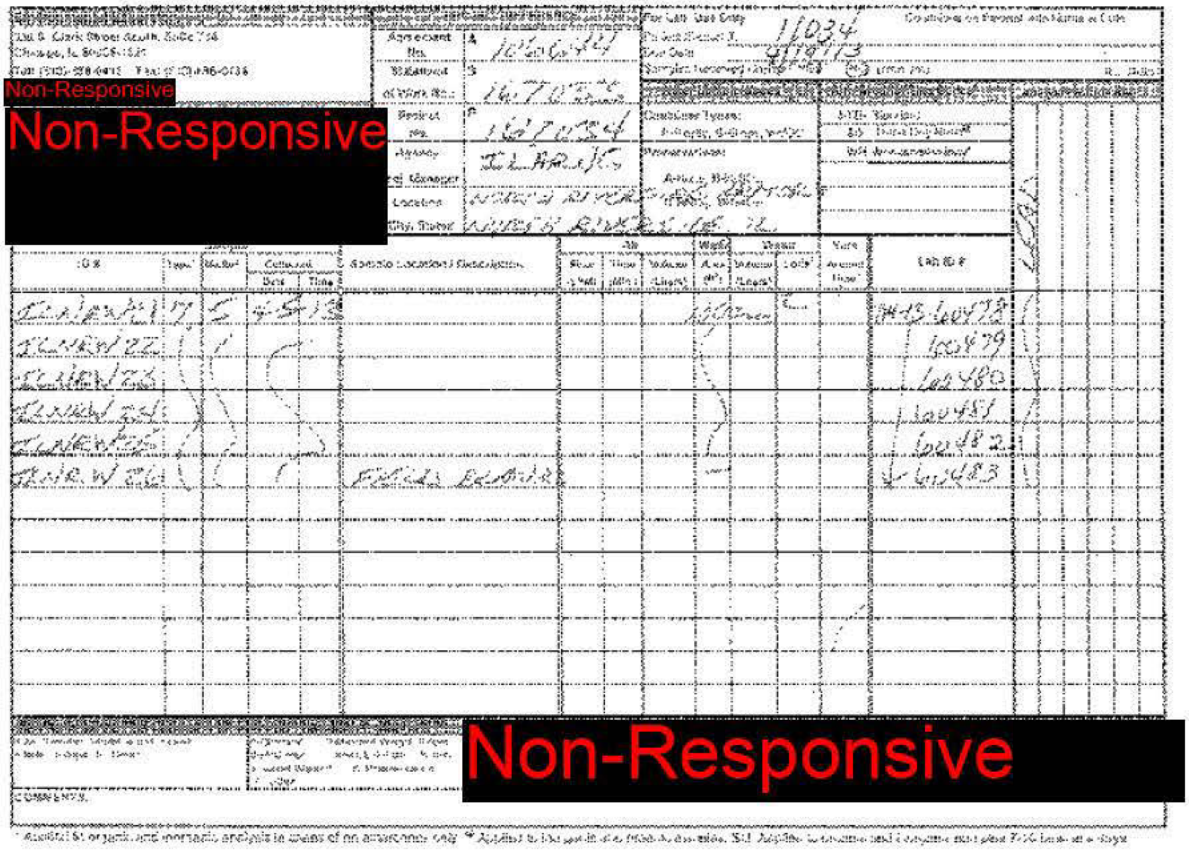
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 11034
Page 2 of 2

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
North Riverside Armory
8660 West Cermak Road
North Riverside, Illinois

Survey date: April 15, 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

June 14, 2011

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A. Point of Contact (POC) List.

B. Methodology and Assessment Criteria.

C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, North Riverside Armory, located in North Riverside, Illinois. 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 North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. Weapons may be cleaned in the arms vaults, in the supply room, or on tables set up on the drill floor.

The North Riverside Armory had an indoor firing range (IFR) that was closed in 1991. On the day of the survey, a lead abatement project was being performed in the former IFR in order to convert it into a computer lab and workout room.

The armory is available for rental for community activities that may include: the Lincoln challenge for 13-17 year olds; armed forces qualification testing on computers; and a polling place for voting.

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 lead level that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILNRA1, which was collected on a workbench in the vault (room 132) had a lead concentration of 455 ug/ft^2.

The North Riverside 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 North Riverside Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, North Riverside Armory, located in North Riverside, Illinois. 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 April 15, 2011.

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

III. Site Description

The North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. Weapons may be cleaned in the arms vaults, in the supply room, or on tables set up on the drill floor.

The North Riverside Armory had an indoor firing range (IFR) that was closed in 1991. On the day of the survey, a lead abatement project was being performed in the former IFR in order to convert it into a computer lab and workout room.

The armory is available for rental for community activities that may include: the Lincoln challenge for 13-17 year olds; armed forces qualification testing on computers; and a polling place for voting.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – North Riverside Armory

V. Findings, Discussion, and Recommendations

The North Riverside Armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. Weapons may be cleaned in the arms vaults, 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 lead level that exceeds 200 ug/ft^2 is considered significant. One of the surface wipe sample results exceeded the above criteria. Sample ILNRA1, which was collected on a workbench in the vault (room 132) had a lead concentration of 455 ug/ft^2.

The North Riverside 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
North Riverside Armory
North Riverside, Illinois
April 15, 2011

Location/Sample Number	Lead (ug/ft^2)
Sample ILNRA1 Room 132, Vault on Workbench	**455**
Sample ILNRA2 Room 130, Vault on Gun Rack	97
Sample ILNRA3 Kitchen on Counter top	<91
Sample ILNRA4 Room 235, Classroom on Desktop	<91
Sample ILNRA5 Room 232, Dental Exam Room on Desktop	<91
Sample ILNRA6 Field Blank	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILNRA1

Sample ILNRA2

Sample ILNRA3

Sample ILNRA4

Sample ILNRA5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the North Riverside Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
North Riverside Armory
North Riverside, Illinois
April 15, 2011

Location	Illumination (foot candles)
Battalion Headquarters	10-38
Room 137, Men's Latrine	12
Room 192, Electrical	11
Room 110, Lincoln's Challenge	25
Room 107, HHD	34
Room 133, Supply NCO	11
Room 134, Supply	4-16
Room 132, Vault	11
Room 129, Office	20
Room 131, Supply Room	2-15
Room 130, Vault	18
Room 101, Office	31-52
Room 185, Office	29
Room 184, Computer Room	19-35
Room 180C, Office	18-32
Room 165, Office	11-27
Room 179, Funeral Honors	33
Room 155, Telephone Room	11
Room 151, Boiler Room	3-21
Room 147, Men's Latrine	13
Drill Floor	17-25
Room 153, Office	7
Kitchen	16-23
Room 218, Facilities	17
Room 235, Classroom	19-41
Room 220, Medical Exam Office	28
Room 232, Dental Exam	29
Room 229, Medical Exam Room	59
Room 208, Locker Room	3-12
Room 209, Locker Room	6-18
Room 205, Classroom	23-37

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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive

North Riverside Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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. 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: North Riverside, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9969
DFOH Lab Nos.:	TM-11-49373 through TM-11-49378
Date Received:	04/19/11
Data Analyzed:	04/20/11 – 04/21/11
Date Issued:	04/22/11

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILNRA1	TM-11-49373	50	455
ILNRA2	TM-11-49374	11	97
ILNRA3	TM-11-49375	<10	<91
ILNRA4	TM-11-49376	<10	<91
ILNRA5	TM-11-49377	<10	<91
ILNRA6**	TM-11-49378	<10	None Detected

Metals in Wipe Limits

(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Non-Responsive	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

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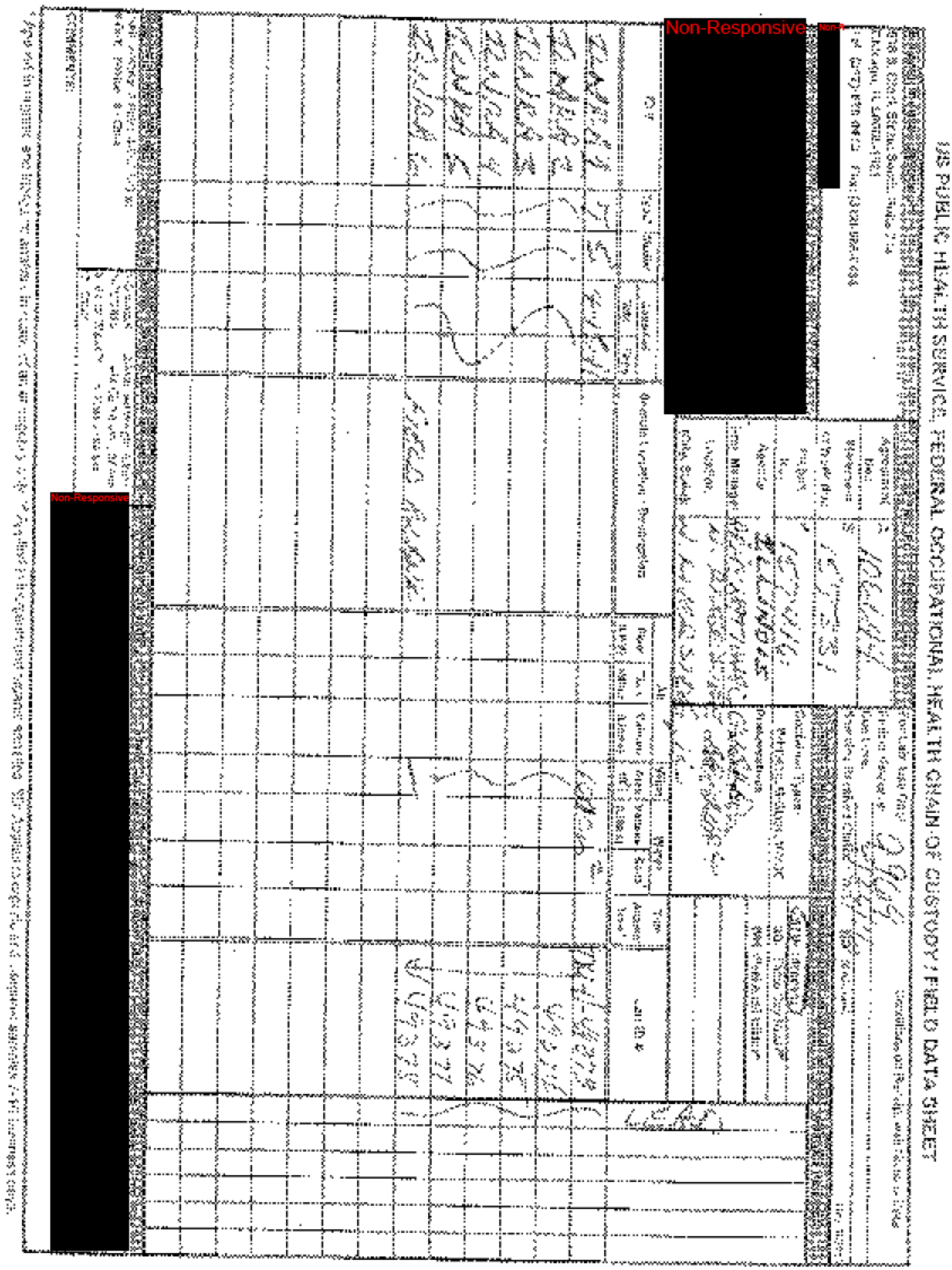
Project 9969
Page 2 of 2



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Indoor Firing Range
North Riverside Armory
8660 West Cermak Road
North Riverside, Illinois

Survey date: April 15, 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

June 15, 2011

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I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, North Riverside Armory Indoor Firing Range located in North Riverside, Illinois. 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 North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. Weapons may be cleaned in the arms vaults, 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 Lincoln challenge for 13-17 year olds; armed forces qualification testing on computers; and a polling place for voting.

The North Riverside Armory had an indoor firing range (IFR) that was closed in 1991. On the day of the survey, a lead abatement project was being performed in the former IFR in order to convert it into a computer lab and workout room. Site personnel requested an assessment of the effectiveness of the control measures established by the lead abatement contractor to keep lead dust within the abatement area. The lead abatement contractor had established a negative pressure enclosure for the abatement area, a shower and change room for leaving the abatement area, and a separate clean room to change into clean clothing. Entrance to the clean room was controlled by walls that had been built by the contractor. Unauthorized personnel were prohibited from entering the abatement or shower and change rooms. The sampling strategy was designed to determine the effectiveness of the controls established by the abatement contractor to ensure that lead dust did not leave the abatement and clean room area that was under the control of the contractor. Surface wipe samples were collected outside of the clean room area to determine the effectiveness of the lead abatement controls.

Five samples were collected on representative surfaces near the IFR abatement area and analyzed for lead. The results indicated detectable levels of lead at both exits from the clean room and just outside of the lead hazard barrier wall. Lead results were below the limit of detection in the center of the drill floor and on a treadmill located on the drill floor. The results suggest that lead dust was migrating from the abatement area to the drill floor.

The North Riverside Armory should ensure that the lead abatement contractor controls the potential spread of lead from the abatement area. All detectable lead on the drill floor should be cleaned up by the abatement contractor at the conclusion of the IFR lead abatement project.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, North Riverside Armory Indoor Firing Range, located in North Riverside, Illinois. 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 lead levels 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 April 15, 2011.

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

III. Site Description

The North Riverside Armory was built in 1988 and has about 79,753 square feet of floor space. The armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program. During the week, most of the activities at the armory involve administrative work. Site personnel reported that no vehicle maintenance activities are performed at the armory. Weapons may be cleaned in the arms vaults, 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 Lincoln challenge for 13-17 year olds; armed forces qualification testing on computers; and a polling place for voting.

The North Riverside Armory had an indoor firing range (IFR) that was closed in 1991. On the day of the survey, a lead abatement project was being performed in the former IFR in order to convert it into a computer lab and workout room. Site personnel requested an assessment of the effectiveness of the control measures established by the lead abatement contractor to keep lead dust within the abatement area. The lead abatement contractor had established a negative pressure enclosure for the abatement area, a shower and change room for leaving the abatement area, and a separate clean room to change into clean clothing. Entrance to the clean room was controlled by walls that had been built by the contractor. Unauthorized personnel were prohibited from entering the abatement or shower and change rooms. The sampling strategy was designed to determine the effectiveness of the controls established by the abatement contractor to ensure that lead dust did not leave the abatement and clean room area that was under the control of the contractor. Surface wipe samples were collected outside of the clean room area to determine the effectiveness of the lead abatement controls.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for lead contamination. Photographs were taken, as appropriate.

Figure 1 – North Riverside Armory

VI. Findings, Discussion, and Recommendations

The North Riverside Armory is the base of operations for the 108th Medical Battalion, 708th Ground Ambulance, 710th Area Support Medical Company, 1244th Transportation Company, 405th BSB, 406th Signal Company, 3625th Maintenance Company and the Recruit Sustainment Program.

The North Riverside Armory had an indoor firing range (IFR) that was closed in 1991. On the day of the survey, a lead abatement project was being performed in the former IFR in order to convert it into a computer lab and workout room. Site personnel requested an assessment of the effectiveness of the control measures established by the lead abatement contractor. The lead abatement contractor has established a negative pressure enclosure for the abatement process, a shower and change room for leaving the abatement area, and a separate clean room to change into clean clothing (Figures 2-4). Unauthorized personnel were prohibited from entering the

abatement or shower and change rooms. The sampling strategy was designed to determine the effectiveness of the controls established by the abatement contractor. Surface wipe samples were collected outside of the clean room to determine the effectiveness of the lead abatement controls.

Figure 2 – North Riverside Armory IFR Abatement – Clean Room

Figure 3 – North Riverside Armory IFR Abatement Controlled Access to Clean Room

Figure 4 – North Riverside Armory IFR Abatement Poster on Access Door to Clean Room

Surface Wipe Samples

Five samples were collected on representative surfaces near the IFR abatement area and analyzed for lead. The results are contained in Table 1. Wipe sample locations are contained in Figure 5.

The results indicated detectable levels of lead at both exits from the clean room and just outside of the lead hazard barrier wall. Lead results were below the limit of detection in the center of the drill floor and on a treadmill located on the drill floor. The results suggest that lead dust was migrating from the abatement area to the drill floor.

The North Riverside Armory should ensure that the lead abatement contractor controls the potential spread of lead from the abatement area. All detectable lead on the drill floor should be cleaned up by the abatement contractor at the conclusion of the IFR lead abatement project.

Table 1
Area Wipe Sampling Results for Metals
Illinois Army National Guard
North Riverside Armory
Indoor Firing Range
North Riverside, Illinois
April 15, 2011

Location/Sample Number	Lead (ug/ft^2)
Sample ILNRA11 Drill Floor, on Floor in Front of Main Exit from Lead Abatement Area	110
Sample ILNRA12 Drill Floor, on Floor in Front of Secondary Exit from Lead Abatement Area	169
Sample ILNRA13 Drill Floor, on Floor Outside of Lead Hazard Barrier Wall	129
Sample ILNRA14 Drill Floor, Center of Room on Floor	<91
Sample ILNRA15 Drill Floor, on Treadmill	<91
Sample ILNRA16 Field Blank	ND

Note:
1) ug/ft^2= micrograms per square foot of surface area. 2) **Bold** indicates that concentration was "significant."
3) ND = None Detected

Recommendations:

1. The North Riverside Armory should ensure that the lead abatement contractor controls the potential spread of lead from the abatement area. (**RAC 2**)

2. All detectable lead on the drill floor should be cleaned up by the abatement contractor at the conclusion of the IFR lead abatement project. (**RAC 2**)

Figure 5 – Wipe Sample Locations (below)

Sample ILNRA11

Sample ILNRA12

Sample ILNRA13

Sample ILNRA14

Sample ILNRA15

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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

North Riverside Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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. 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: North Riverside, IL (N.R. IFR)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9970
DFOH Lab Nos.:	TM-11-49379 through TM-11-49384
Date Received:	04/19/11
Data Analyzed:	04/20/11 – 04/21/11
Date Issued:	04/22/11

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILNRA11	TM-11-49379	12	110
ILNRA12	TM-11-49380	19	169
ILNRA13	TM-11-49381	14	129
ILNRA14	TM-11-49382	<10	<91
ILNRA15	TM-11-49383	<10	<91
ILNRA16**	TM-11-49384	<10	None Detected

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

[redacted]

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9970
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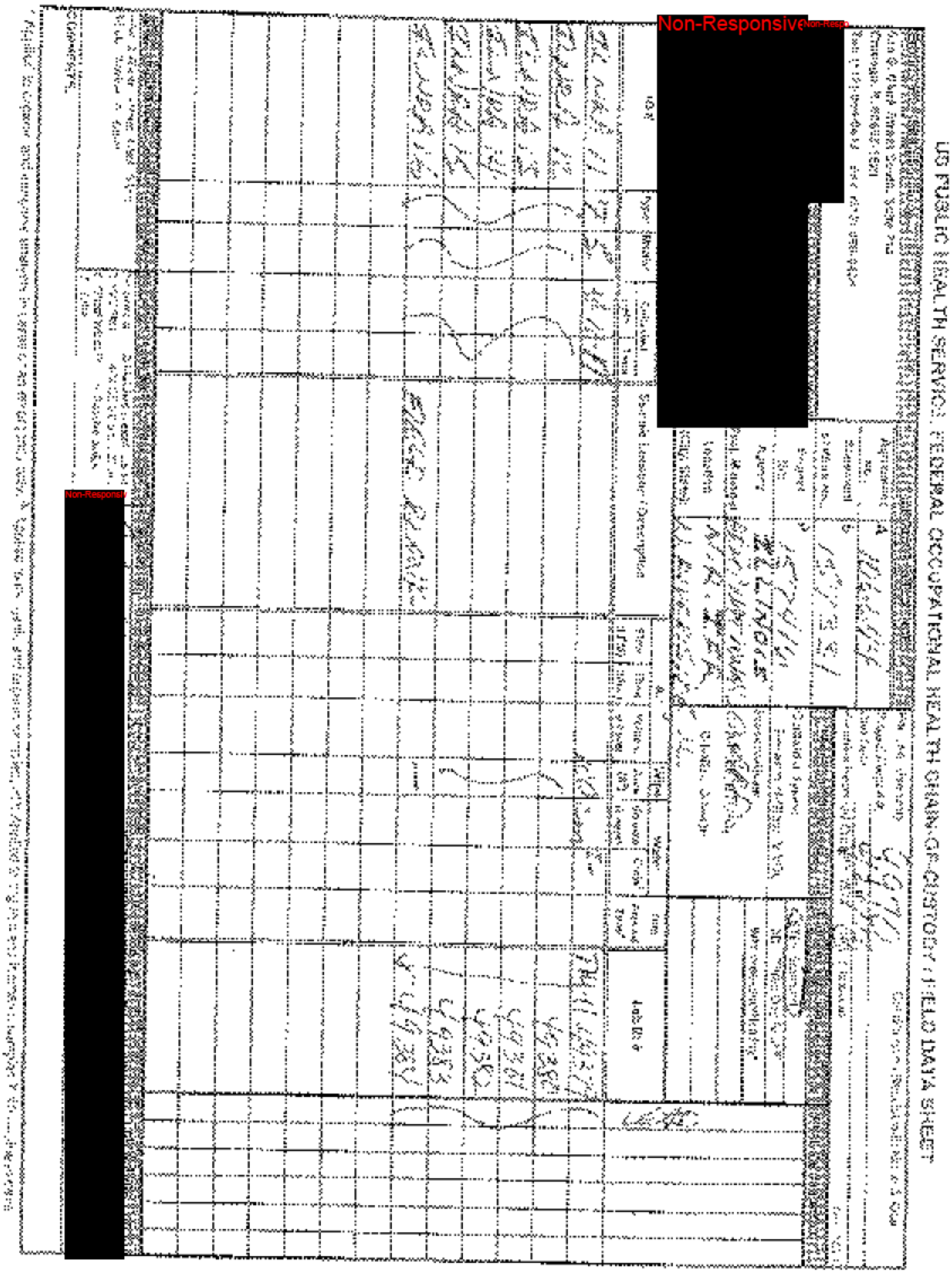

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Pontiac Armory
825 West Reynolds Street
Pontiac, Illinois

Survey date: February 28, 2013

Performed by

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

March 31, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Pontiac Armory, located in Pontiac, Illinois. 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 Pontiac Armory was built in 1938, and it has 32,825 square feet of floor space. The armory is the base of operations for Troop A, 2-106th Cavalry Squadron. 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 Pontiac Armory had an indoor firing range that was closed approximately thirty years ago. 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: high school wrestling practice; the Livingston County Health Department Health Fair; the Livingston County Career Center Career Fair; and Red Cross Blood Drives.

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. Three of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected in the basement in the former indoor firing range, in the bullet trap area, had a lead concentration of 959 ug/ft^2. A sample collected in the basement, in the center of the former indoor firing range, had a lead concentration of 1,709 ug/ft^2. A sample collected on the floor in the vault had a lead concentration of 759 ug/ft^2. 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^2.

The Pontiac 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 Pontiac Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Pontiac Armory, located in Pontiac, Illinois. 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 February 28, 2013.

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

III. Site Description

The Pontiac Armory was built in 1938, and it has 32,825 square feet of floor space. The armory is the base of operations for Troop A, 2-106th Cavalry Squadron. 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 Pontiac Armory had an indoor firing range that was closed approximately thirty years ago. 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: high school wrestling practice; the Livingston County Health Department Health Fair; the Livingston County Career Center Career Fair; and Red Cross Blood Drives.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Pontiac Armory

V. Findings, Discussion, and Recommendations

The Pontiac Armory is the base of operations for Troop A, 2-106th Cavalry Squadron. 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 Pontiac Armory had an indoor firing range that was closed approximately thirty years ago. 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.

Three of the surface wipe sample results exceeded the NGB criteria. Sample ILPOW1, which was collected in the basement in the former indoor firing range, in the bullet trap area, had a lead concentration of 959 ug/ft^2. Sample ILPOW2, which was collected in the basement, in the center of the former indoor firing range, had a lead concentration of 1,709 ug/ft^2. Sample ILPOW3, which was collected in the vault on the floor had a lead concentration of 759 ug/ft^2. 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^2.

The Pontiac 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
Illinois Army National Guard
Pontiac Armory
Pontiac, Illinois
February 28, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Basement, Former IFR, Bullet Trap Area	ILPOW1	**959**
Basement, Center of Former IFR	ILPOW2	**1,709**
Vault, on Floor	ILPOW3	**759**
Drill Floor, on Floor	ILPOW4	<91
Kitchen, on Counter	ILPOW5	<91
Field Blank	ILPOW6	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^2	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^2. (**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 ILPOW1

Sample ILPOW2

Sample ILPOW3

Sample ILPOW4

Sample ILPOW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Pontiac Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Pontiac Armory
Pontiac, Illinois
February 28, 2013

Location	Illumination (foot candles)
Room 104	35-46
Room 105, Janitor's Closet	14-19
Computer Lab	22-44
Classroom	38-45
Kitchen	39-42
Supply Room	118-133
Supply Office	24-40
Vault	69-86
Basement Cage Room	30-74
Boiler Room	4-6
Coal Room	8-28
Basement Storage	1-4
Drill Floor	30-46
Lobby	44-60
Latrine	21-31

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

Recommendation:

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

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of the NGB. This survey report was reviewed by Non-Responsive Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Pontiac Armory Point of Contact

Non-Responsive POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Pontiac, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10948
DFOH Lab Nos.:	TM-13-59833 through TM-13-59838
Date Received:	03/07/13
Data Analyzed:	03/08/13 - 03/11/13
Date Issued:	03/13/13

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10948
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILPOW1	TM-13-59833	106	959
ILPOW2	TM-13-59834	188	1709
ILPOW3	TM-13-59835	84	759
ILPOW4	TM-13-59836	<10	<91
ILPOW5	TM-13-59837	<10	<91
ILPOW6**	TM-13-59838	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

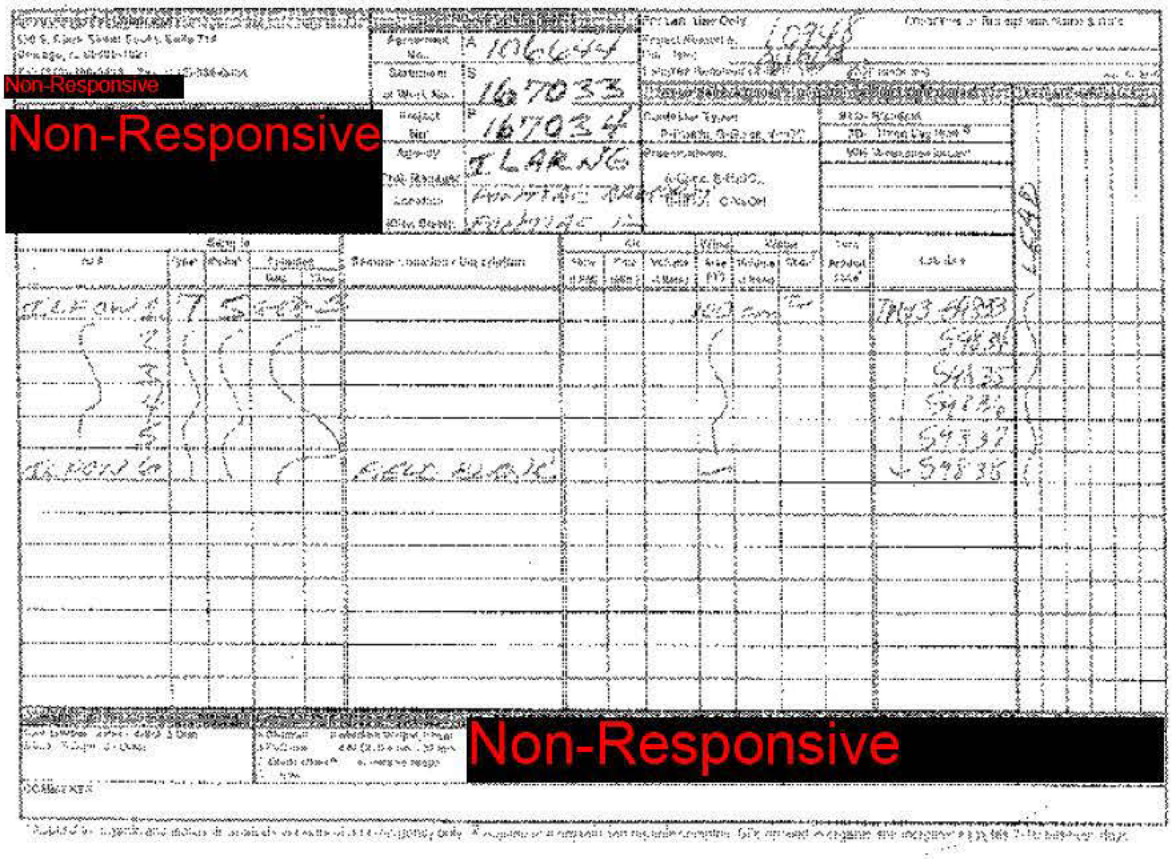
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Quincy Armory
702 Kochs Lane
Quincy, Illinois

Survey date: December 6, 2012

Performed by

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

January 27, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Quincy Armory, located in Quincy, Illinois. 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 Quincy Armory was built in 1977. The facility has about 28,860 square feet of floor space. The armory is the base of operations for the 1844th Transportation Company. 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 the 1990's and converted into a classroom. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory does not have a vehicle maintenance bay. Site personnel reported that the armory is not available for rental for 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. None of the surface wipe sample results exceeded the NGB criteria for lead. The Quincy 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 Quincy Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Quincy Armory, located in Quincy, Illinois. 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 December 6, 2012.

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

III. Site Description

The Quincy Armory was built in 1977. The facility has about 28,860 square feet of floor space. The armory is the base of operations for the 1844th Transportation Company. 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 the 1990's and converted into a classroom. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory does not have a vehicle maintenance bay. Site personnel reported that the armory is not available for rental for community activities.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Quincy Armory

V. Findings, Discussion, and Recommendations

The Quincy Armory is the base of operations for the 1844th Transportation Company. 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 the 1990's and converted into a classroom. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory does not have a vehicle maintenance bay. Site personnel reported that the armory is not available for rental for community activities.

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 Quincy 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
Illinois Army National Guard
Quincy Armory
Quincy, Illinois
December 6, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Room 15, Classroom, on Desktop	ILQUARW1	<91
Vault, on Gun Rack	ILQUARW2	<91
Drill Floor, on Floor in Center	ILQUARW3	<91
Kitchen, on Food Prep Table	ILQUARW4	<91
1st Platoon Office, on Floor (Former IFR bullet trap area)	ILQUARW5	<91
Field Blank	ILQUARW6	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^2	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 ILQUARW1

Sample ILQUARW2

Sample ILQUARW3

Sample ILQUARW4

Sample ILQUARW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Quincy Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Quincy Armory
Quincy, Illinois
December 6, 2012

Location	Illumination (foot candles)
Room 2, Orderly Room	84-128
Room 2B, Office	110-126
Room 2C, Conference Room	118-138
Room 15, Classroom	29-58
Room 14, Office	31-41
Room 14A, Computer Lab	34-69
1st Platoon Office	23-26
1st Platoon Classroom	15-26
Weight Room	14-18
Drill Floor	18-24
Kitchen	48-81
Supply Room	11-19
Supply Room Office	56-80

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, 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

Illinois Army National Guard State Points of Contact

Industrial Hygiene Technician
Non-Responsive

Quincy Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Quincy, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10832
DFOH Lab Nos.:	TM-13-58729 through TM-13-58734
Date Received:	12/10/12
Data Analyzed:	12/13/12 - 12/14/12
Date Issued:	12/18/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10832
Page 1 of 2

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILQUARW1	TM-13-58729	<10	<91
ILQUARW2	TM-13-58730	<10	<91
ILQUARW3	TM-13-58731	<10	<91
ILQUARW4	TM-13-58732	<10	<91
ILQUARW5	TM-13-58733	<10	<91
ILQUARW6**	TM-13-58734	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

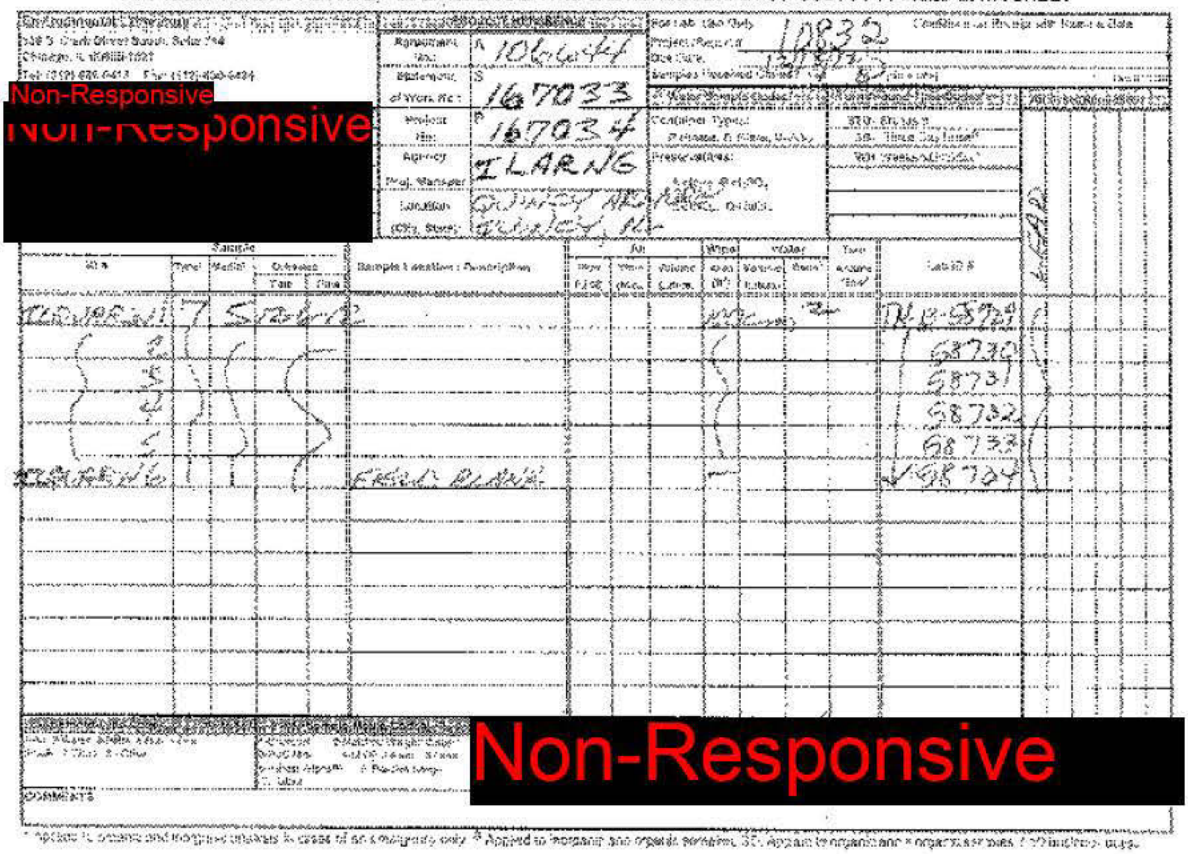
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

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



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Rock Falls Armory
716 Sixth Avenue
Rock Falls, Illinois

Survey date: November 14, 2012

Performed by

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

January 25, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Rock Falls Armory, located in Rock Falls, Illinois. 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 Rock Falls Armory was built in 1956, and it has about 32,400 square feet of floor space. The armory is the base of operations for the 164th Transportation Hotel Company RSP and the Department of Veterans Affairs. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays. The Rock Falls Armory had a firing range that was closed in 2004 and converted to a classroom, weight room and janitors 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: high school basketball; and park district exercise programs for adults.

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 surface wipe sampling criteria criteria for lead. The Rock Falls 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 Rock Falls Armory. Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Rock Falls Armory, located in Rock Falls, Illinois. 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 November 14, 2012.

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

III. Site Description

The Rock Falls Armory was built in 1956, and it has about 32,400 square feet of floor space. The armory is the base of operations for the 164th Transportation Hotel Company RSP and the Department of Veterans Affairs. During the week, most of the activities at the armory involve administrative work. Site personnel reported that there are no maintenance bays. The Rock Falls Armory had a firing range that was closed in 2004 and converted to a classroom, weight room and janitors 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: high school basketball; and park district exercise programs for adults.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Rock Falls Armory

V. Findings, Discussion, and Recommendations

The Rock Falls Armory is the base of operations for the 164th Transportation Hotel Company RSP and the Department of Veterans Affairs. Site personnel reported that there are no maintenance bays. 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.

None of the surface wipe sample results exceeded the NGB surface wipe sampling criteria criteria for lead. The Rock Falls 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 Wipe Sampling Results for Lead
Illinois Army National Guard
Rock Falls Armory
Rock Falls, Illinois
November 14, 2012

Location	Sample #	Lead Concentration (ug/ft^2)
Janitor's Office on Floor (Former IFR)	Sample ILA2W1	<91
Drill Floor, Center of Floor, on Floor	Sample ILA2W2	<91
Kitchen on Range	Sample ILA2W3	<91
Vault on Gun Rack	Sample ILA2W4	<91
Break Room on Countertop	Sample ILA2W5	<91
Field Blank	Sample ILA2W6	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^2	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 ILA2W1

Sample ILA2W2

Sample ILA2W3

Sample ILA2W4

Sample ILA2W5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Rock Falls Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Rock Falls Armory
Rock Falls, Illinois
November 14, 2012

Location	Illumination (foot candles)
Boiler Room	6-9
Boiler Storage Room	17-19
Drill Floor	52-57
VA Waiting Room	51-56
Copy Room	65-76
Office #4	73-77
Training NCO Office	59-61
Hotel Company RSP Office	42-96
Recruiting Office	43-60
Classroom	48-56
Break Room	69-72
Kitchen	23-71
Dining Room	51-53
Classroom 2	16-24

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed met 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Rock Falls Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Rock Falls, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10809
DFOH Lab Nos.:	TM-13-58495 through TM-13-58500
Date Received:	11/26/12
Data Analyzed:	11/28/12 - 11/29/12
Date Issued:	11/29/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILA2W1	TM-13-58495	<10	<91
ILA2W2	TM-13-58496	<10	<91
ILA2W3	TM-13-58497	<10	<91
ILA2W4	TM-13-58498	<10	<91
ILA2W5	TM-13-58499	<10	<91
ILA2W6**	TM-13-58500	<10	None Detected

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

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Project 10809
Page 2 of 2

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

Non-Responsive

Non-Responsive

Non-Responsive

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Salem Armory
531 North College Street
Salem, Illinois

Survey date: November 4, 2010

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

January 4, 2011

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C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Salem Armory, located in Salem, Illinois. 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 Salem Armory was built in 1938 and has 31,689 square feet of floor space. The Salem Armory had a firing range that closed in 1998. 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 volleyball league and senior citizens who walk the perimeter of the drill floor for exercise.

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.

Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Six of the surface wipe sample results exceeded the above criteria. Sample ILSLW3 which was collected on the drill floor, in the northeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,500 ug/ft^2. Sample ILSLW4 which was collected on the drill floor, in the southeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,100 ug/ft^2. Sample ILSLW6 which was collected on the floor of the vault had a lead concentration of 290 ug/ft^2. Sample ILSLW8 which was collected in the closed indoor firing range, on the floor at the bullet trap area, had a lead concentration of 3,300 ug/ft^2. Sample ILSLW9 which was collected in the closed indoor firing range, on the floor of the pipe tunnel, had a lead concentration of 1,700 ug/ft^2. Sample ILSLW10 which was collected in the closed indoor firing range, on the floor near the entrance, had a lead concentration of 300 ug/ft^2. The Salem 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 Salem Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

Extensive water damage was observed on the wall in the drill floor area. Several damaged wall panels had been removed. The source of the water leak should be identified and repaired.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Six of the surface wipe sample results exceeded the above criteria. Sample ILSLW3 which was collected on the drill floor, in the northeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,500 ug/ft^2. Sample ILSLW4 which was collected on the drill floor, in the southeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,100 ug/ft^2. Sample ILSLW6 which was collected on the floor of the vault had a lead concentration of 290 ug/ft^2. Sample ILSLW8 which was collected in the closed indoor firing range, on the floor at the bullet trap area, had a lead concentration of 3,300 ug/ft^2. Sample ILSLW9 which was collected in the closed indoor firing range, on the floor of the pipe tunnel, had a lead concentration of 1,700 ug/ft^2. Sample ILSLW10 which was collected in the closed indoor firing range, on the floor near the entrance, had a lead concentration of 300 ug/ft^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. 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.	4 4 2
Water Damage/Lighting		
Extensive water damage was observed on the wall in the drill floor area. Several damaged wall panels had been removed. A lighting survey was conducted in the offices and storage areas in the Salem Armory. Most of the areas surveyed did not meet minimum illumination requirements.	The source of the water leak in the drill floor area should be identified and repaired. Illumination levels should be improved in some offices and storage areas.	2 4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Salem Armory, located in Salem, Illinois. 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 November 4, 2010.

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.

IV. Site Description

The Salem Armory was built in 1938. The facility has 31,689 square feet of floor space that encompasses a drill floor, garage, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, poured concrete walls that are about twenty one feet high and a poured concrete sloped roof. The office and classroom areas have tile floors, poured concrete walls and suspended ceilings. The exterior of the building is poured concrete.

The Salem Armory is the base of operations for Company D 2130th 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 Salem Armory had a firing range that closed in 1998. 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 volleyball league and senior citizens who walk the perimeter of the drill floor for exercise.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Salem Armory

VI. Findings, Discussion, and Recommendations

The Salem Armory is the base of operations for Company D 2130th Infantry. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

Surface Wipe Samples

Ten samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Six of the surface wipe sample results exceeded the above criteria. Sample ILSLW3 which was collected on the drill floor, in the northeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,500 ug/ft^2. Sample ILSLW4 which was collected on the drill

floor, in the southeast corner on a windowsill ten feet above the floor, had a lead concentration of 1,100 ug/ft^2. Sample ILSLW6 which was collected on the floor of the vault had a lead concentration of 290 ug/ft^2. Sample ILSLW8 which was collected in the closed indoor firing range, on the floor at the bullet trap area, had a lead concentration of 3,300 ug/ft^2. Sample ILSLW9 which was collected in the closed indoor firing range, on the floor of the pipe tunnel, had a lead concentration of 1,700 ug/ft^2. Sample ILSLW10 which was collected in the closed indoor firing range, on the floor near the entrance, had a lead concentration of 300 ug/ft^2.

The Salem 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Salem Armory
Salem, Illinois
November 4, 2010

Analyte	ILSLW1 (ug/ft^2) Commander's Office on Desktop	ILSLW2 (ug/ft^2) Drill Floor – NE Corner on Floor	ILSLW3 (ug/ft^2) Drill Floor – NE Corner on Windowsill 10' Above Floor
Lead	<10	160	**1,500**
Cadmium	<1.0	2.9	13
Chromium	<10	13	100

Analyte	ILSLW4 (ug/ft^2) Drill Floor – SE Corner on Windowsill 10' Above Floor	ILSLW5 (ug/ft^2) Stage - on Floor	ILSLW6 (ug/ft^2) Vault - on Floor
Lead	**1,100**	94	**290**
Cadmium	22	3.7	27
Chromium	71	<10	27

Analyte	ILSLW7 (ug/ft^2) Classroom - on Desktop	ILSLW8 (ug/ft^2) IFR (Closed) – on Floor at Bullet Trap Area	ILSLW9 (ug/ft^2) IFR (Closed) – on Floor of Pipe Tunnel
Lead	14	**3,300**	**1,700**
Cadmium	1.2	13	23
Chromium	<10	32	100

Analyte	ILSLW10 (ug/ft^2) IFR (Closed) – on Floor Near Entrance	ILSLW11 (ug/ft^2) Field Blank
Lead	**300**	ND
Cadmium	7.8	ND
Chromium	29	ND

Note:
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**)

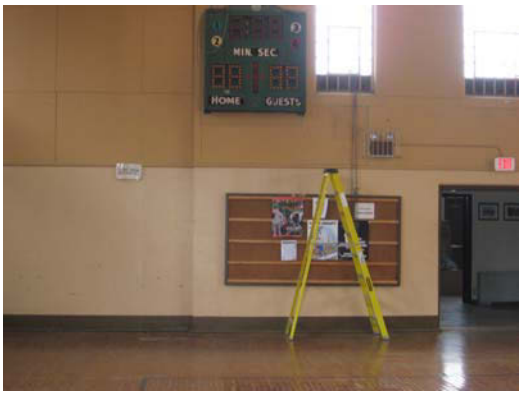
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

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

Figure 2 – Wipe Sample Locations (below)

ILSLW1

ILSLW2



ILSLW3

ILSLW4

ILSLW5

ILSLW6

ILSLW7

ILSLW8

ILSLW9

ILSLW10

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Salem Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Salem Armory
Salem, Illinois
November 4, 2010

Location	Illumination (foot candles)
Training Office	22
Orderly Room	25
Commander's Office	11
Recruiter's Office	34
Classroom	19
Locker Room	24
Latrine – West Side	28
Locker Room – South	5
NBC Room	9
FRG Room	26
Supply Room	36
Vault	15
Section Cage	6
Kitchen	27
Janitor's Storage	17
Garage Storage	23
Latrine – East Side	26
Retention Office	32
Executive Officer's Office	36
Drill Floor	36
Basement	11
Boiler Room	7
Coal Chute Room	6

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, maintenance bay, and storage areas.

Recommendation:

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

Water Damage

Extensive water damage was observed on the wall in the drill floor area (Figure 3). Several damaged wall panels had been removed. The source of the water leak should be identified and repaired.

Recommendation:

The source of the water leak in the drill floor area should be identified and repaired. (**RAC 2**)

Figure 3 – Water Damage on Wall in Drill Floor Area

This survey was conducted by, and report written by Non-Responsive as, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Salem Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 144 inches squared (in^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Salem, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9815
DFOH Lab Nos.:	TM-11-48208 through TM-11-48218
Date Received:	11/22/10
Data Analyzed:	11/30/10
Date Issued:	12/02/10

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSLW1	TM-11-48206	<10	<10
ILSLW2	TM-11-48209	160	160
ILSLW3	TM-11-48210	1500	1500
ILSLW4	TM-11-48211	1100	1100
ILSLW5	TM-11-48212	94	94
ILSLW6	TM-11-48213	290	290
ILSLW7	TM-11-48214	14	14
ILSLW8	TM-11-48215	3300	3300
ILSLW9	TM-11-48216	1700	1700
ILSLW10	TM-11-48217	300	300
ILSLW11	TM-11-48218		None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSLW1	TM-11-48206	<1.0	<1.0
ILSLW2	TM-11-48209	2.9	2.9
ILSLW3	TM-11-48210	13	13
ILSLW4	TM-11-48211	22	22
ILSLW5	TM-11-48212	3.7	3.7
ILSLW6	TM-11-48213	27	27
ILSLW7	TM-11-48214	1.2	1.2
ILSLW8	TM-11-48215	13	13
ILSLW9	TM-11-48216	23	23
ILSLW10	TM-11-48217	7.8	7.8
ILSLW11	TM-11-48218		None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSLW1	TM-11-48206	<10	<10
ILSLW2	TM-11-48209	13	13
ILSLW3	TM-11-48210	100	100
ILSLW4	TM-11-48211	71	71
ILSLW5	TM-11-48212	<10	<10
ILSLW6	TM-11-48213	27	27
ILSLW7	TM-11-48214	<10	<10
ILSLW8	TM-11-48215	32	32
ILSLW9	TM-11-48216	100	100
ILSLW10	TM-11-48217	<10	29
ILSLW11	TM-11-48218		None Detected

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 9815
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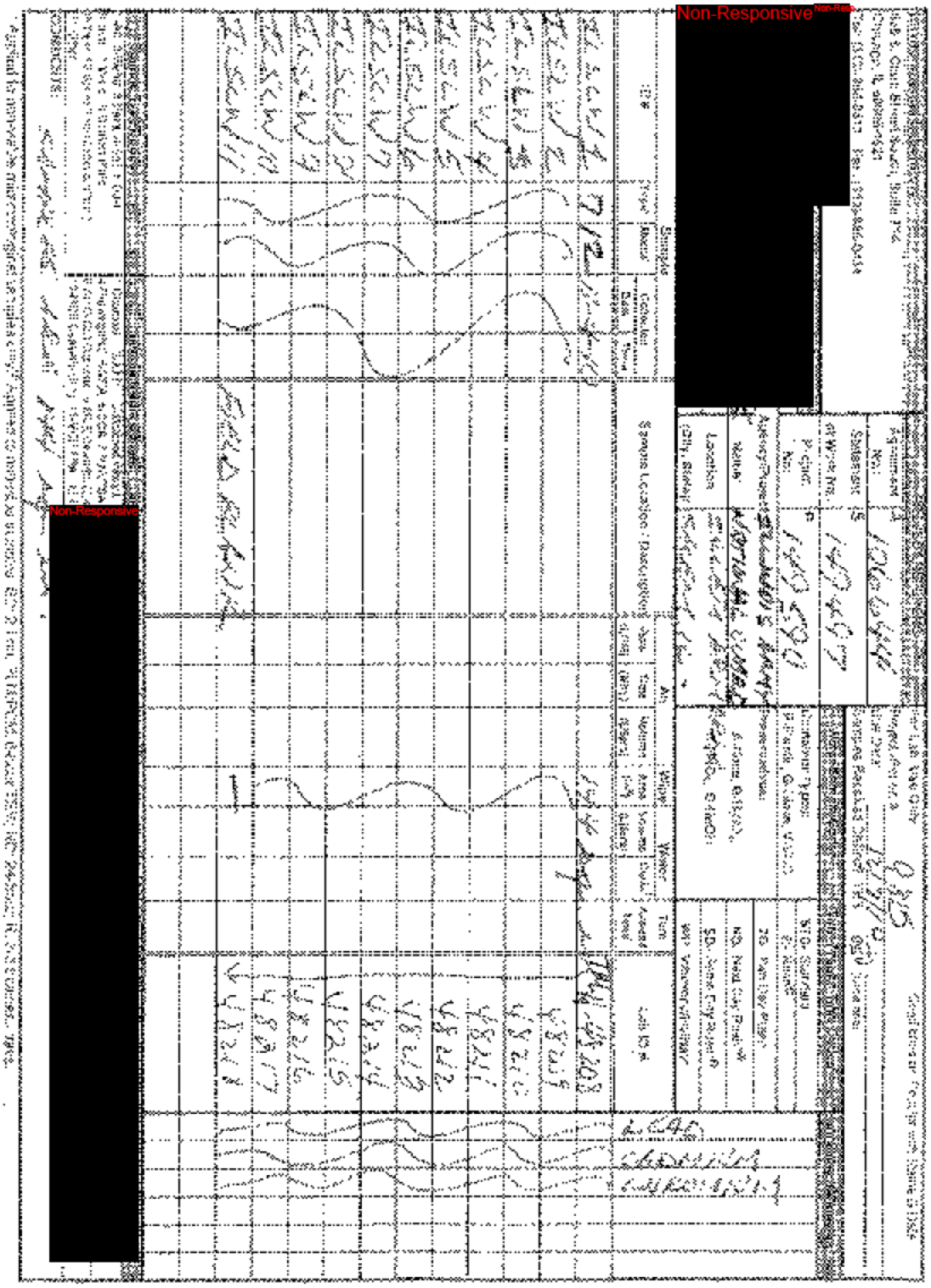

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

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

B Medical Effects Points Assessed

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

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

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

* Sum of A and B above

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

A Duration of Exposure Points Assessed

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

B Number of Exposed personnel Points Assessed

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

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

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

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

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Sparta Armory
1803 Hillcrest
Sparta, Illinois

Survey date: December 11, 2012

Performed by

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

January 31, 2013

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I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Sparta Armory, located in Sparta, Illinois. 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 Sparta Armory is the base of operations for the 661st Engineering Company. Site personnel reported that the FMS 8 shop in Carbondale, Illinois had been closed and relocated. FMS 8 is now temporarily housed in the two maintenance bays located in the Sparta Armory. An industrial hygiene survey was performed in FMS 8 and the results of that survey and personal exposure monitoring are included in a separate report. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Armory personnel reported that the facility is not available for rental for community activities.

Site personnel reported that the Sparta Armory had an indoor firing range (IFR) that was closed and converted to a storage area. On the day of the survey, site personnel could not provide access to the former IFR. Surface wipe sampling for heavy metals should be performed in the former firing range.

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metals and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for lead, cadmium, and chromium. None of the surface wipe sample results exceeded the NGB criteria for lead. The Sparta 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 Sparta Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Sparta Armory, located in Sparta, Illinois. 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 December 11, 2012.

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

III. Site Description

The Sparta Armory was built in 1990 and has about 25,047 square feet of floor space. The armory is the base of operations for the 661st Engineering Company. Site personnel reported that the FMS 8 shop in Carbondale, Illinois had been closed and relocated. FMS 8 is now temporarily housed in the two maintenance bays located in the Sparta Armory. An industrial hygiene survey was performed in FMS 8 and the results of that survey and personal exposure monitoring are included in a separate report.

Site personnel reported that the Sparta Armory had an indoor firing range (IFR) that was closed and converted to a storage area. On the day of the survey, site personnel could not provide access to the former IFR. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Armory personnel reported that the facility is not available for rental for community activities.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Sparta Armory

V. Findings, Discussion, and Recommendations

The Sparta Armory is the base of operations for the 661st Engineering Company. Site personnel reported that the FMS 8 shop in Carbondale had been closed and relocated. FMS 8 is now temporarily housed in the two maintenance bays located in the Sparta Armory.

Site personnel reported that the Sparta Armory had an indoor firing range (IFR) that was closed and converted to a storage area. On the day of the survey, site personnel could not provide access to the former IFR. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. Armory personnel reported that the facility is not available for rental for community activities.

Surface Wipe Samples

Five samples were collected on representative surfaces in the facility and analyzed for lead, cadmium, and chromium. The results are contained in Table 1. Wipe sample locations are identified in Figure 2. The NGB surface wipe sampling criteria for metals are contained in Table 2.

None of the surface wipe sample results exceeded the NGB criteria. The Sparta 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.

On the day of the survey, site personnel could not provide access to the former IFR. Surface wipe sampling for heavy metals should be performed in the former firing range.

Table 1
Surface Area Wipe Sampling Results for Metals
Illinois Army National Guard
Sparta Armory
Sparta, Illinois
December 11, 2012

Sample Number and Location	Lead (ug/ft^2)	Cadmium (ug/ft^2)	Chromium (ug/ft^2)
Sample ILSAW1, Vault on Gun Rack	<91	<9.1	<91
Sample ILSAW12, on Floor at Rifle Range Door	<91	<9.1	<91
Sample ILSAW13, Break Area on Counter Top	<91	<9.1	<91
Sample ILSAW14, Classroom 103B, on Table	<91	<9.1	<91
Sample ILSAW15, Kitchen on Serving Table	<91	<9.1	<91
Sample ILSAW16, Field Blank	ND	ND	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 Metals

Metal	Acceptable Surface Level ug/ft^2	Basis for Criteria
Cadmium	28	Brookhaven National Laboratory, Surface Wipe Sampling Procedure, Risk Assessment for Metals, IH75190 Rev 18 5/10/11
Chromium 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. 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**)

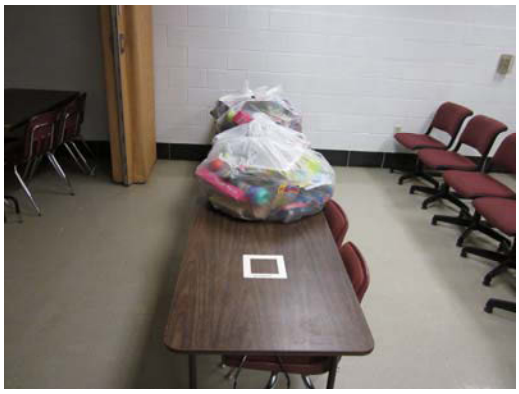
4. Surface wipe sampling for heavy metals should be performed in the former firing range. (**RAC 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILSAW1

Sample ILSAW2

Sample ILSAW3



Sample ILSAW4

Sample ILSAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Sparta Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Sparta Armory
Sparta, Illinois
December 11, 2012

Location	Illumination (foot candles)
Room 132, Kitchen	45-102
Room 123, Supply Room	5-18
Latrine	21-37
Room 118, Locker Room	21-28
Room 102A, Classroom	35-40
Room 103B, Classroom	21-25
Room 112, Library	64-86
Room 103A, Classroom	27-34
Room 110A, Unit Offices	58-83
Room 108, Office	43-50
Room 110B, Orderly Room	37-41
Room 135, Commander`s Office	30-41
Drill Floor	38-56

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Sparta Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and 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

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

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

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium and Chromium
Sampling Site: NGB: Sparta, IL (Sparta Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 10839
DFOH Lab Nos.: TM-13-58783 through TM-13-58788
Date Received: 12/13/12
Data Analyzed: 12/17/12 – 12/18/12
Date Issued: 12/20/12

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

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

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

Non-Responsive

AIHA LAP LLC
ACCREDITED LABORATORY

Project 10839
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FOH ENVIRONMENTAL LABORATORY
538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSAW1	TM-13-58783	<10	<91
ILSAW2	TM-13-58784	<10	<91
ILSAW3	TM-13-58785	<10	<91
ILSAW4	TM-13-58786	<10	<91
ILSAW5	TM-13-58787	<10	<91
ILSAW6**	TM-13-58788	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSAW1	TM-13-58783	<1.0	<9.1
ILSAW2	TM-13-58784	<1.0	<9.1
ILSAW3	TM-13-58785	<1.0	<9.1
ILSAW4	TM-13-58786	<1.0	<9.1
ILSAW5	TM-13-58787	<1.0	<9.1
ILSAW6**	TM-13-58788	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSAW1	TM-13-58783	<10	<91
ILSAW2	TM-13-58784	<10	<91
ILSAW3	TM-13-58785	<10	<91
ILSAW4	TM-13-58786	<10	<91
ILSAW5	TM-13-58787	<10	<91
ILSAW6**	TM-13-58788	<10	None Detected

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FOH ENVIRONMENTAL LABORATORY

636 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

Surface Wipe Sampling Criteria

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

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

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

[redacted]

AIHA LAP, LLC
ACCREDITED LABORATORY
LEADING

Project 10839
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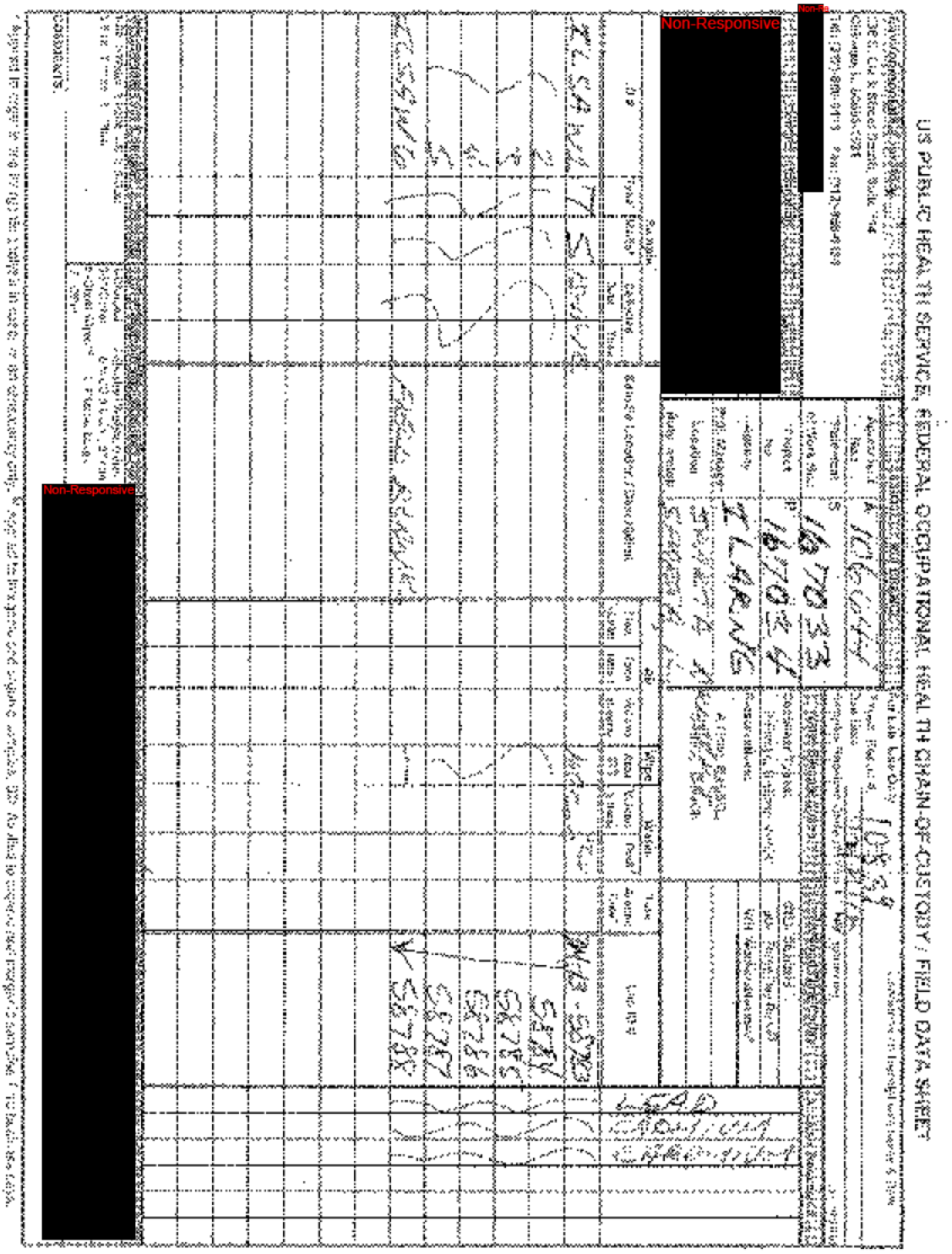

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

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

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

A Exposure Points Assessed

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

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Streator Armory
401 West Bridge Street
Streator, Illinois

Survey date: February 28, 2013

Performed by

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

April 1, 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Streator Armory, located in Streator, Illinois. 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 Streator Armory was built in 1939, and it has about 29,828 square feet of floor space. The armory is the base of operations for Alpha Company 405th Brigade Support Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Streator Armory had an indoor firing range that was closed in 2001. 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: senior walking on the drill floor; Boy Scout meetings; Cub Scout meetings; banquets; and after school sports for high school students.

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 Streator 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 Streator Armory. Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Streator Armory, located in Streator, Illinois. 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 February 28, 2013.

The NGB conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Streator Armory was built in 1939, and it has about 29,828 square feet of floor space. The armory is the base of operations for Alpha Company 405th Brigade Support Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Streator Armory had an indoor firing range that was closed in 2001. 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: senior walking on the drill floor; Boy Scout meetings; Cub Scout meetings; banquets; and after school sports for high school students.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Streator Armory

V. Findings, Discussion, and Recommendations

The Streator Armory is the base of operations for Alpha Company 405th Brigade Support Battalion. During the week, most of the activities at the armory involve administrative work. Site personnel reported that that no major vehicle maintenance is performed at the armory. No vehicle maintenance was performed on the day of the survey. The Streator Armory had an indoor firing range that was closed in 2001. 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: senior walking on the drill floor; Boy Scout meetings; Cub Scout meetings; banquets; and after school sports for high school students.

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 Streator 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
Illinois Army National Guard
Streator Armory
Streator, Illinois
February 28, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Supply Office, Floor in Front of Vault	ILSTW1	<91
Basement, Former IFR, Near Bullet Trap	ILSTW2	141
Basement, Former IFR, Center of Range	ILSTW3	<91
Kitchen, on Counter Top	ILSTW4	<91
Drill Floor, on Floor, Center	ILSTW5	<91
Field Blank	ILSTW6	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^2	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 ILSTW1

Sample ILSTW2

Sample ILSTW3

Sample ILSTW4

Sample ILSTW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Streator Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Streator Armory
Streator, Illinois
February 28, 2013

Location	Illumination (foot candles)
Room 106, Office	56-61
Room 105, Conference Room	60-78
Room 103B, Computer Room	90-102
Room 101, Office	32-45
Drill Floor	24-42
Kitchen	22-36
Supply Office	48-75
Room 110, Classroom	21-22
Basement, Former IFR	7-42
Boiler Room	6-25
Communications Room	2-41
Room 107, Training NCO Office	34-52
Latrine	24-35

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Some of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some offices and storage areas.

Recommendation:

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (**RAC 4**)

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of the NGB. This survey report was reviewed by Non-Responsive, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Streator Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 to the first using an "S" motion. The wipe was folded again and the perimeter of the area was wiped. The wipe was then placed into a plastic cylinder, the cylinder was capped and sealed and the samples were sent to the FOH Laboratory in Chicago, Illinois, for analysis for lead. The lead samples were analyzed on a Perkin Elmer 200 flame atomic absorption spectrophotometer using the OSHA ID-121 method.

Lighting Levels

Illumination levels were measured with a Sper Scientific 840022 Broad Range Lux/FC Meter that had been calibrated according to the manufacturer's specifications. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

638 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Streator, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10946
DFOH Lab Nos.:	TM-13-59821 through TM-13-59826
Date Received:	03/07/13
Data Analyzed:	03/08/13 - 03/11/13
Date Issued:	03/13/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSTW1	TM-13-59821	<10	<91
ILSTW2	TM-13-59822	16	141
ILSTW3	TM-13-59823	<10	<91
ILSTW4	TM-13-59824	<10	<91
ILSTW5	TM-13-59825	<10	<91
ILSTW6**	TM-13-59826	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

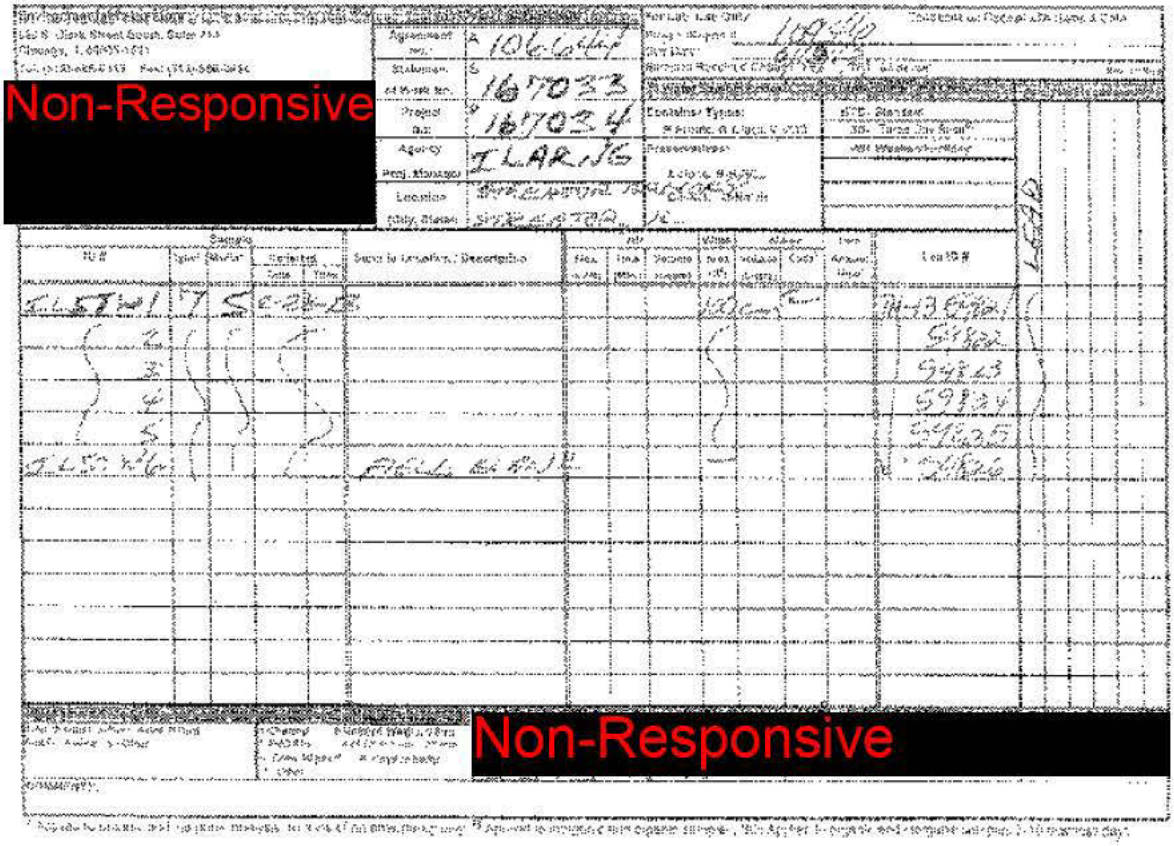
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Sullivan Armory
1400 North Main Street
Sullivan, Illinois

Survey date: July 1, 2010

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

November 13, 2010

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Sullivan Armory, located in Sullivan, Illinois. 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 Sullivan Armory was built in 1953. The facility has 31,374 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and a weapons vault. The drill floor has a wood floor, concrete block walls that are about 22 feet high and an arched roof that is supported by exposed metal trusses. The office and classroom areas have carpeted or tile floors, concrete block walls and poured concrete ceilings. The exterior of the building is brick veneer.

The Sullivan Armory is the base of operations for Detachment 1, Company A, 634th Brigade Support Battalion and Headquarters, Headquarters Company, 634th 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 Sullivan Armory has an indoor firing range (IFR) that closed about 10 years ago. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory has not been available for rental for community activities in the last 3 years.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.

Four of the surface wipe samples exceeded the above criteria for lead. Sample ILSUW2, which was collected on the floor of the IFR, near the firing area, had a lead concentration of 5,100 ug/ft^2. Sample ILSUW3, which was collected on the IFR bullet trap, had a lead concentration of 25,000 ug/ft^2. Sample ILSUW4, which was collected on the floor of the IFR, near the bullet trap, had a lead concentration of 25,000 ug/ft^2 . Sample ILSUW5, which was collected on the floor of the vault, had a lead concentration of 890 ug/ft^2.

The Sullivan 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. The indoor firing range should be decontaminated before it is converted to any other uses.

A lighting survey was conducted in the offices and storage areas in the Sullivan 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.	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.	4
Four of the surface wipe samples exceeded the above criteria for lead. Sample ILSUW2, which was collected on the floor of the IFR, near the firing area, had a lead concentration of 5,100 ug/ft^2. Sample ILSUW3, which was collected on the IFR bullet trap, had a lead concentration of 25,000 ug/ft^2. Sample ILSUW4, which was collected on the floor of the IFR, near the bullet trap, had a lead concentration of 25,000 ug/ft^2 . Sample ILSUW5, which was collected on the floor of the vault, had a lead concentration of 890 ug/ft^2.	Continue to clean the horizontal surfaces in work and storage areas.	4
	When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition.	2
	The indoor firing range should be decontaminated before it is converted to any other uses.	2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Sullivan 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Sullivan Armory, located in Sullivan, Illinois. 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 July 1, 2010.

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.

IV. Site Description

The Sullivan Armory was built in 1953. The facility has 31,374 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and a weapons vault. The drill floor has a wood floor, concrete block walls that are about 22 feet high and an arched roof that is supported by exposed metal trusses. The office and classroom areas have carpeted or tile floors, concrete block walls and poured concrete ceilings. The exterior of the building is brick veneer.

The Sullivan Armory is the base of operations for Detachment 1, Company A, 634th Brigade Support Battalion and Headquarters, Headquarters Company, 634th 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 Sullivan Armory has an indoor firing range (IFR) that closed about 10 years ago. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor.

The armory has not been available for rental for community activities in the last 3 years.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Sullivan Armory

VI. Findings, Discussion, and Recommendations

The Sullivan Armory is the base of operations for Detachment 1, Company A, 634th Brigade Support Battalion and Headquarters, Headquarters Company, 634th Brigade Support Battalion. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. 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 three heavy metals (lead, cadmium and chromium). The results are contained in Table 1. At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.

Four of the surface wipe samples exceeded the above criteria for lead. Sample ILSUW2, which was collected on the floor of the IFR, near the firing area, had a lead concentration of 5,100 ug/ft^2. Sample ILSUW3, which was collected on the IFR bullet trap, had a lead concentration of 25,000 ug/ft^2. Sample ILSUW4, which was collected on the floor of the IFR, near the bullet trap, had a lead concentration of 25,000 ug/ft^2 . Sample ILSUW5, which was collected on the floor of the vault, had a lead concentration of 890 ug/ft^2.

The Sullivan 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. The indoor firing range should be decontaminated before it is converted to any other uses.

Table 1
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Sullivan Armory
Sullivan, Illinois
July 1, 2010

Analyte	ILSUW1 (ug/ft^2) Classroom – on Tabletop	ILSUW2 (ug/ft^2) IFR – Firing Area – on Floor	ILSUW3 (ug/ft^2) IFR – on Bullet Trap Backstop
Lead	<91	**5,100**	**25,000**
Cadmium	22	<9.1	<9.1
Chromium	<91	110	<91

Analyte	ILSUW4 (ug/ft^2) IFR – Bullet Trap Area – on Floor	ILSUW5 (ug/ft^2) Vault – on Floor	ILSUW6 (ug/ft^2) Field Blank
Lead	**25,000**	**890**	ND
Cadmium	28	20	ND
Chromium	140	110	ND

Note:
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**)

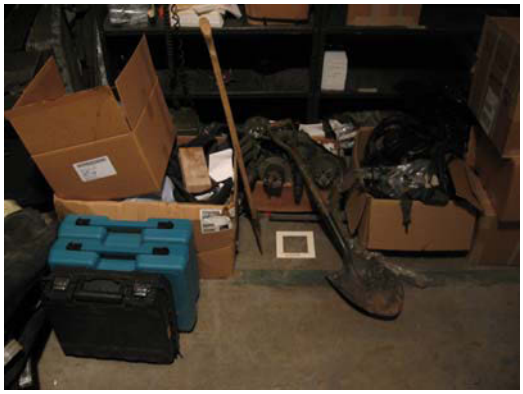
2. Continue to clean the horizontal surfaces in work and storage areas. (**RAC 4**)

3. When weapons are cleaned, special attention should be given to cleaning up the work area to prevent potential lead contamination from ammunition. (**RAC 2**)

4. The indoor firing range should be decontaminated before it is converted to any other uses. (**RAC 2**)

Figure 2 – Wipe Sample Locations (below)

Sample ILSUW1



Sample ILSUW2

Sample ILSUW3

Sample ILSUW4

Sample ILSUW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Sullivan Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Sullivan Armory
Sullivan, Illinois
July 1, 2010

Location	Illumination (foot candles)
Room 41 Classroom	19
Room 44 Commanders Office	32
Room 45 Office	19
Room 40 Supply Office	15
Room 39 Vault	13
Room 6 Women's Latrine	10
Room 4 Office	80
Room 3 Office	55
Room 5 Office	75
Room 7 Office	101
Room 9 Office	58
Room 14 Office	45
Room 15 Office	44
Room 13 Office	71
Room 18 Office	82
Room 21 Office	46
Drill Floor (electricity turned off due to electrical rewiring)	8
IFR	20
Maintenance Bay (electricity turned off due to electrical rewiring)	0.2

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive

Sullivan Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Sullivan, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9601
DFOH Lab Nos.:	TM-10-46485 through TM-10-46490
Date Received:	0709/10
Data Analyzed:	07/17/10 through 07/23/10
Date Issued:	07/28/10

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSUW1	TM-10-46485	<10	<91
ILSUW2	TM-10-46486	560	5100
ILSUW3	TM-10-46487	2800	25000
ILSUW4	TM-10-46488	2800	25000
ILSUW5	TM-10-46489	98	890
ILSUW6**	TM-10-46490	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSUW1	TM-10-46485	<1.0	22
ILSUW2	TM-10-46486	2.4	<9.1
ILSUW3	TM-10-46487	<1.0	<9.1
ILSUW4	TM-10-46488	3.1	28
ILSUW5	TM-10-46489	2.2	20
ILSUW6**	TM-10-46490	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSUW1	TM-10-46485	<10	<91
ILSUW2	TM-10-46486	12	110
ILSUW3	TM-10-46487	<10	<91
ILSUW4	TM-10-46488	15	140
ILSUW5	TM-10-46489	12	110
ILSUW6**	TM-10-46490	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

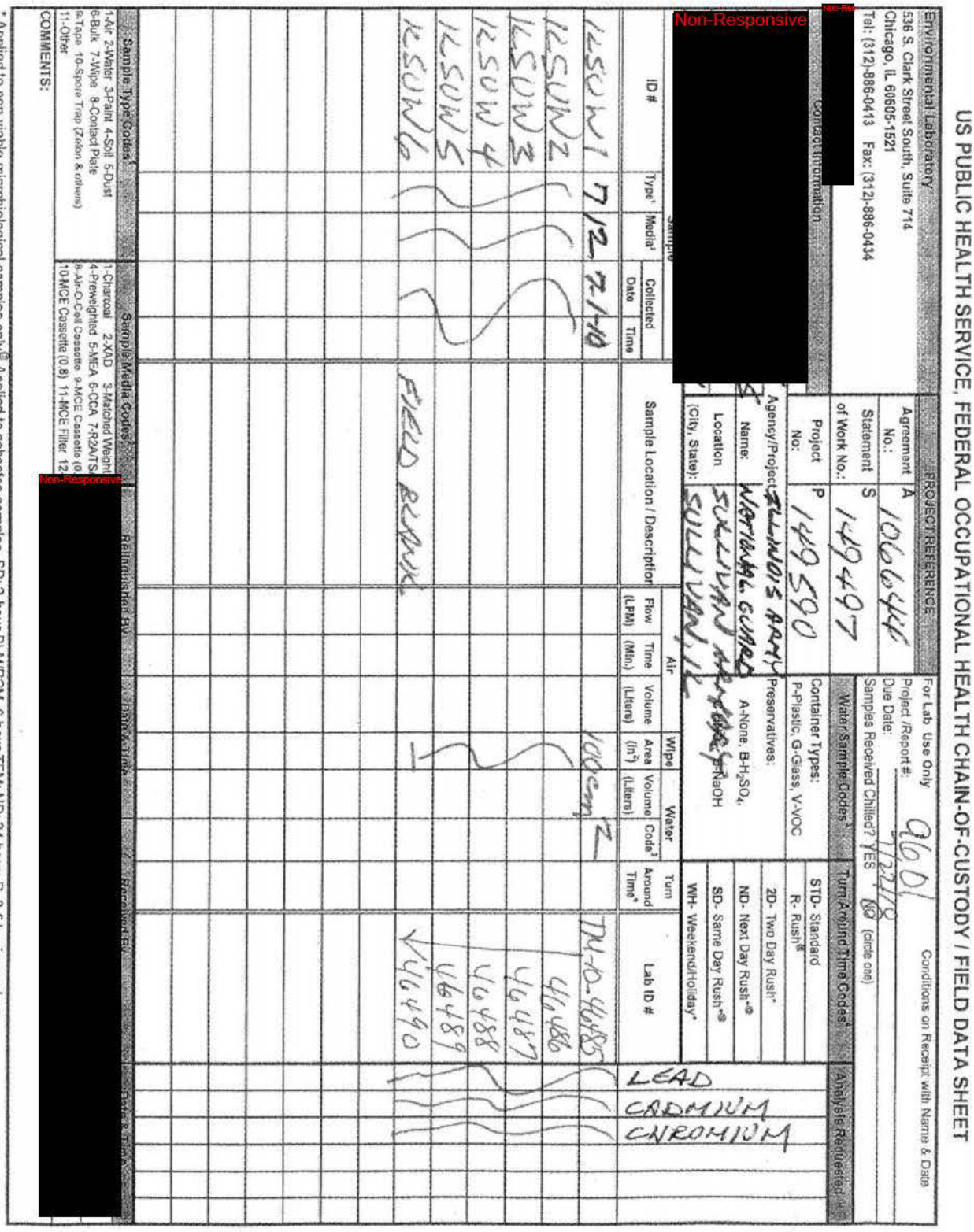
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9601
Page 2 of 2



US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

PROJECT REFERENCE
Agreement No.: A 10606416
Statement of Work No.: S 1494497
Project No: P 1495900

For Lab Use Only
Project /Report #: 960
Due Date: 7/22/10
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date

Contact Information
Non-Responsive

Agency/Project Name: ILLINOIS ARNG / WORTHWHILE CONTRACTING
Location (City, State): SULLIVAN, IL

Water Sample Codes: Container Types: P-Plastic, G-Glass, V-VOC; Preservatives: A-None, B-H_2SO_4, C-HNO3, D-NaOH

Turn Around Time Codes: STD- Standard; R- Rush[8]; 2D- Two Day Rush*; ND- Next Day Rush*[8]; SD- Same Day Rush*[8]; WH- Weekend/Holiday*

ID #	Sample Type[1]	Sample Media[1]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in²)	Wipe Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #	Analysis Requested
KSUW1		7/2	7/1/10					100				TAT-10-46485		LEAD
KSUW2												46486		CADMIUM
KSUW3												46487		CHROMIUM
KSUW4												46488		
KSUW5												46489		
KSUW6					FIELD BLANK				1			46490		

Sample Type Codes[1]: 1-Air 2-Water 3-Paint 4-Soil 5-Dust 6-Bulk 7-Wipe 8-Contact Plate 9-Tape 10-Spore Trap (Zefon & others) 11-Other

Sample Media Codes[1]: 1-Charcoal 2-XAD 3-Matched Weight 4-Preweighted 5-MEA 6-CCA 7-R2A/TSA 8-Air-O-Cell Cassette 9-MCE Cassette (0.[8] 10-MCE Cassette (0.8) 11-MCE Filter 12-

COMMENTS:

Relinquished by: Non-Responsive — Date/Time — Received by: — Date/Time

*Applied to non-viable microbiological samples only. [8] Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour, R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Sycamore Armory
516 East State Street
Sycamore, Illinois

Survey date: March 8, 2013

Performed by

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

April 8, 2013

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D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Sycamore Armory, located in Sycamore, Illinois. 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 Sycamore Armory was built in 1938 and it has about 28,785 square feet of floor space. The armory is the base of operations for Battery A, 2-122nd Field Artillery. 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 Sycamore Armory had an indoor firing range. Site personnel reported that it was closed in 1988 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 rental for community activities that include: senior walkers; decorating homecoming floats; and headquarters for a 10K race.

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 Sycamore 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 Sycamore Armory. Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Sycamore Armory, located in Sycamore, Illinois. 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 8, 2013.

The NGB conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Sycamore Armory was built in 1938 and it has about 28,785 square feet of floor space. The armory is the base of operations for Battery A, 2-122nd Field Artillery. 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 Sycamore Armory had an indoor firing range. Site personnel reported that it was closed in 1988 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 rental for community activities that include: senior walkers; decorating homecoming floats; and headquarters for a 10K race.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Sycamore Armory

V. Findings, Discussion, and Recommendations

The Sycamore Armory is the base of operations for Battery A, 2-122nd Field Artillery. 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 Sycamore Armory had an indoor firing range. Site personnel reported that it was closed in 1988 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 rental for community activities that include: senior walkers; decorating homecoming floats; and headquarters for a 10K race.

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 Sycamore 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
Illinois Army National Guard
Sycamore Armory
Sycamore, Illinois
March 8, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Drill Floor, Center	ILSYW1	<91
Kitchen, on Griddle	ILSYW2	<91
Vault, on Floor	ILSYW3	<91
Former IFR, Center	ILSYW4	<91
Former IFR, at Bullet Trap Area	ILSYW5	<91
Field Blank	ILSYW6	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^2	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 ILSYW1

Sample ILSYW2

Sample ILSYW3

Sample ILSYW4

Sample ILSYW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Sycamore Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Sycamore Armory
Sycamore, Illinois
March 8, 2013

Location	Illumination (foot candles)
Room 105, Office	52-78
Room 106, Office	26-55
Room 108, Office	58-68
Room 109, Office	62-68
Room 104, Office	78-95
Room 144, Classroom	31-34
Room 133, Locker	22-43
Latrine	41-50
Room 134, Locker	11-17
Tech Library	32-34
Storage	27-30
Stage – Weight Room	41-45
Supply Office	57-78
Supply Annex	40-58
NBC Room	57-76
Vault	38-66
Drill Floor	80-114
Kitchen	80-124
FDC Office	64-73
Garage	7-20
Basement Caged Storage	6-37
Boiler Room	4-14

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed met minimum illumination requirements. Illumination levels should be improved in some 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

Illinois Army National Guard State Points of Contact

Non-Responsive

[redacted]

Sycamore Armory Point of Contact

Non-Responsive

[redacted]

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Sycamore, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10975
DFOH Lab Nos.:	TM-13-60051 through TM-13-60056
Date Received:	03/15/13
Data Analyzed:	03/20/13 - 03/21/13
Date Issued:	03/21/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILSYW1	TM-13-60051	<10	<91
ILSYW2	TM-13-60052	<10	<91
ILSYW3	TM-13-60053	<10	<91
ILSYW4	TM-13-60054	<10	<91
ILSYW5	TM-13-60055	<10	<91
ILSYW6**	TM-13-60056	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

Metals in Wipe Limits
(based on one ft² sampled area)

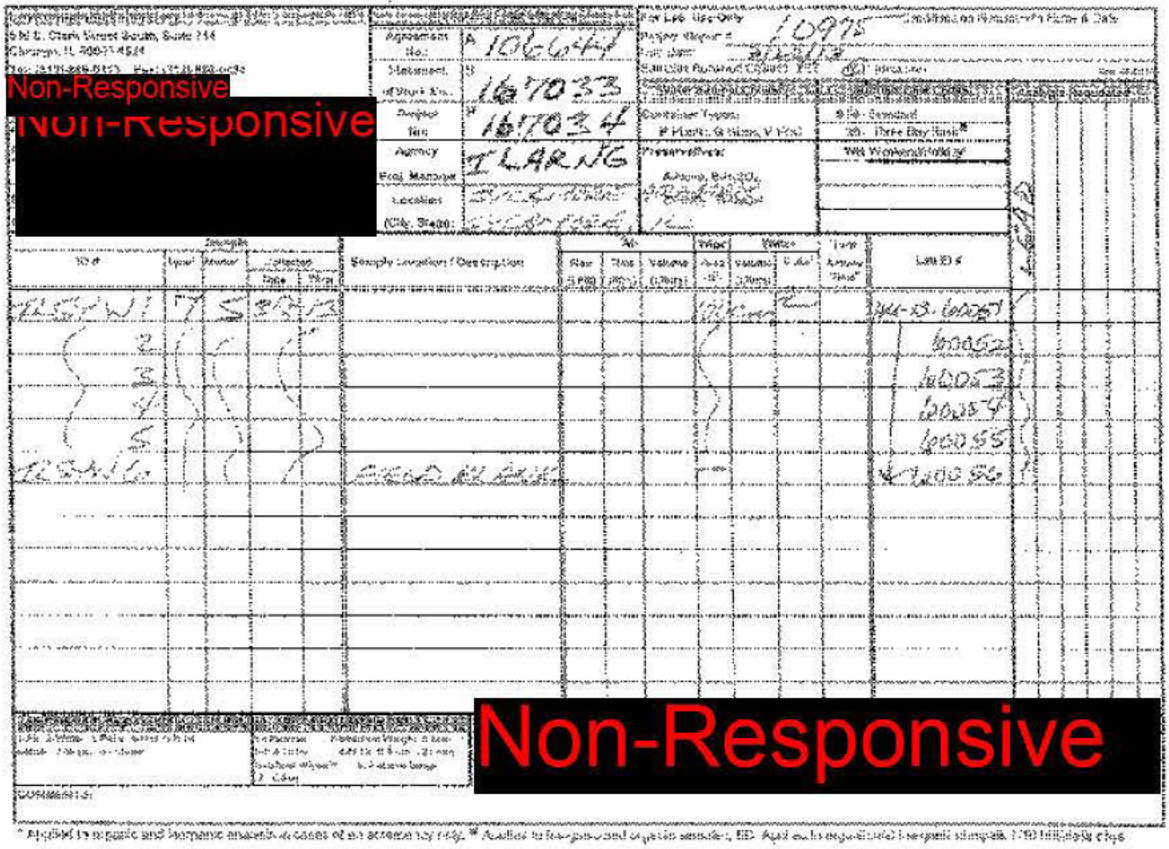
Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10975
Page 2 of 2

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Waukegan Armory
1600 Glen Flora Avenue
Waukegan, Illinois

Survey date: April 8, 2010

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 15, 2010

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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. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, Waukegan Armory, located in Waukegan, Illinois. 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 Waukegan Armory was built in 1938. The facility has 39,852 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault.

The Waukegan Armory is the base of operations for 933rd MP 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 Waukegan Armory had a firing range. Site personnel reported that it has been closed for at least 3 years. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is not available for rental for 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 heavy metal contamination and a lighting survey.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Two of the surface wipe sample results exceeded the above criteria. Sample ILWAW2 which was collected on the floor near the former bullet trap area in the closed firing range had a lead concentration of 49,000 ug/ft^2. Sample ILWAW4 which was collected on a storage shelf in the garage had a lead concentration of 4,700 ug/ft^2 and a chromium concentration of 490 ug/ft^2. The Waukegan 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 Waukegan 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. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant.	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.	4
Two of the surface wipe sample results exceeded the above criteria. Sample ILWAW2 which was collected on the floor near the former bullet trap area in the closed firing range had a lead concentration of 49,000 ug/ft^2. Sample ILWAW4 which was collected on a storage shelf in the garage had a lead concentration of 4,700 ug/ft^2 and a chromium concentration of 490 ug/ft^2.	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.	4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the Waukegan 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.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, Waukegan Armory, located in Waukegan, Illinois. 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 April 8, 2010.

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.

IV. Site Description

The Waukegan Armory was built in 1938. The facility has 39,852 square feet of floor space that encompasses a drill floor, maintenance bay, offices, classrooms, kitchen, latrines, supply room and weapons vault. The drill floor has a wood floor, poured concrete walls that are about 35 feet high and poured concrete block arches supporting an arched roof. The office and classroom areas have tile floors, poured concrete or concrete block walls and suspended ceilings. The exterior of the building is brick.

The Waukegan Armory is the base of operations for 933rd MP 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 Waukegan Armory had a firing range that was located in the basement. Site personnel reported that it has been closed for at least 3 years. Weapons may be cleaned in the vault, in the supply room, or on tables set up on the drill floor. The armory is not available for rental for community activities.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Waukegan Armory

VI. Findings, Discussion, and Recommendations

The Waukegan Armory is the base of operations for 933rd MP Company. Site personnel reported that vehicle maintenance activities are limited to fluid checks and tire changes on drill weekends. No vehicle maintenance was performed on the day of the survey. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Two of the surface wipe sample results exceeded the above criteria. Sample ILWAW2 which was collected on the floor near the former bullet trap area in the closed firing range had a lead concentration of 49,000 ug/ft^2. Sample ILWAW4 which was collected on a storage shelf in the garage had a lead concentration of 4,700 ug/ft^2 and a chromium concentration of 490 ug/ft^2. The Waukegan 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
Waukegan Armory
Waukegan, Illinois
April 8, 2010

Analyte	ILWAW1 (ug/ft^2) Drill Floor – Center of Floor	ILWAW2 (ug/ft^2) Closed Firing Range – on Floor – Near Bullet Trap	ILWAW3 (ug/ft^2) Kitchen – on Countertop
Lead	<91	**49,000**	<91
Cadmium	<9.1	<9.1	<9.1
Chromium	<91	<91	<91

Analyte	ILWAW4 (ug/ft^2) Garage – on Storage Shelf	ILWAW5 (ug/ft^2) Vault – on Storage Rack	ILWAW6 (ug/ft^2) Field Blank
Lead	**4,700**	<91	ND
Cadmium	35	24	ND
Chromium	**490**	<91	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)


Sample ILWAW1


Sample ILWAW2

Sample ILWAW3

Sample ILWAW4

Sample ILWAW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Waukegan Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
Waukegan Armory
Waukegan, Illinois
April 8, 2010

Location	Illumination (foot candles)
Room 145 – Human Resources	92
Drill Floor	22
Classroom	31
Room 112 – Office	63
Basement (Closed Firing Range)	7
Basement – Boiler Room	4
Room 133 – Operations	32
Room 125 – Locker Room	26
Room 119 – Kitchen	28
Room 128 – Supply Room	9
Room 200 – Men's Latrine	16
Room 105 – Locker Room	26
Room 137 – Storage	17
Room 151 – Orderly Room	38
Garage	23

Table 3
Lighting Standards
ANSI Standard RP7 "Practice for Lighting" Table 6-1

Location	Minimum foot candles required
Office/library/general areas	100
Any maintenance areas	100
Battery room (or any electrical equipment areas)	100
Break room	100
Supply or storage rooms/area	20
Corridors	20
Inactive areas	5

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**)

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.

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of Federal Occupational Health.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

Waukegan Armory Point of Contact

Non-Responsive – POC

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 by the manufacturer. Illumination levels were recorded as foot candles.

Appendix C

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: Waukegan, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9478
DFOH Lab Nos.:	TM-10-45358 through TM-10-45363
Date Received:	04/23/10
Data Analyzed:	04/30/10 through 05/04/10
Date Issued:	05/07/10

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
LAB # 102543

FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWAW1	TM-10-45358	<10	<91
ILWAW2	TM-10-45359	5400	49000
ILWAW3	TM-10-45360	<10	<91
ILWAW4	TM-10-45361	520	4700
ILWAW5	TM-10-45362	<10	<91
ILWAW6**	TM-10-45363	<10	None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWAW1	TM-10-45358	<1.0	<9.1
ILWAW2	TM-10-45359	<1.0	<9.1
ILWAW3	TM-10-45360	<1.0	<9.1
ILWAW4	TM-10-45361	3.9	35
ILWAW5	TM-10-45362	2.7	24
ILWAW6**	TM-10-45363	<1.0	None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWAW1	TM-10-45358	<10	<91
ILWAW2	TM-10-45359	<10	<91
ILWAW3	TM-10-45360	<10	<91
ILWAW4	TM-10-45361	53	490
ILWAW5	TM-10-45362	<10	<91
ILWAW6**	TM-10-45363	<10	None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE & ENVIRONMENTAL LEAD
ISO/IEC 17025:2005
LAB # 102543

Project 9478
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US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET

Environmental Laboratory
536 S. Clark Street South, Suite 714
Chicago, IL 60605-1521
Tel: (312)-886-0413 Fax: (312)-886-0434

Contact Information
Non-Responsive [redacted]

PROJECT REFERENCE

Agreement No.:	A 1066446
Statement of Work No.:	S 149497
Project No:	P 149590
Agency/Project Name:	ILLINOIS ARMY NATIONAL GUARD
Location (City, State):	WAUKEGAN ARMORY WAUKEGAN, IL

For Lab Use Only: Project /Report #: 9478 Due Date: 5/4/10
Samples Received Chilled? YES NO (circle one)
Conditions on Receipt with Name & Date

Water Sample Codes[3]
Container Types: P-Plastic, G-Glass, V-VOC
Preservatives: A-None, B-H_2SO_4, C-HNO_3, D-NaOH

Turn Around Time Codes[4]
STD- Standard
R- Rush[@]
2D- Two Day Rush*
ND- Next Day Rush*[@]
SD- Same Day Rush*[@]
WH- Weekend/Holiday*

Analysis Requested: LEAD, CADMIUM, CHROMIUM

Sample ID #	Type[1]	Media[2]	Collected Date	Collected Time	Sample Location / Description	Air Flow (LPM)	Air Time (Min.)	Air Volume (Liters)	Wipe Area (in^2)	Water Volume (Liters)	Water Code[3]	Turn Around Time*	Lab ID #
ILWAW1	7	12	4-8-10						100 cm^2				TM-10-45358
ILWAW2													45359
ILWAW3													45360
ILWAW4													45361
ILWAW5													45362
ILWAW6					FIELD BLANK				—				45363

Sample Type Codes[1]
1-Air 2-Water 3-Paint 4-Soil 5-Dust
6-Bulk 7-Wipe 8-Contact Plate
9-Tape 10-Spore Trap (Zefon & others)
11-Other

Sample Media Codes[2]
1-Charcoal 2-XAD 3-Matched Weight
4-Preweighted 5-MEA 6-CCA 7-R2A/TSA
8-Air-O-Cell Cassette 9-MCE Cassette (0.4
10-MCE Cassette (0.8) 11-MCE Filter 12-C

Non-Responsive [redacted]

COMMENTS:

* Applied to non-viable microbiological samples only.[@] Applied to asbestos samples, SD: 2-hour PLM/PCM, 6-hour TEM; ND: 24-hour; R: 3-5 business days.

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
West Frankfort Armory
802 West Main Street
West Frankfort, Illinois

Survey date: November 4, 2010

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

January 4, 2011

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A. Point of Contact (POC) List.

B. Methodology and Assessment Criteria.

C. Laboratory Result Reports and Chain of Custody Sheets.

D. Occupational Health Risk Assessment Codes (RACs)

I. Executive Summary

At the request of the National Guard Bureau Region West Industrial Hygiene Office, field personnel representing the U.S. Public Health Service, Division of Federal Occupational Health (FOH) conducted an industrial hygiene survey at the Illinois Army National Guard, West Frankfort Armory, located in West Frankfort, Illinois. 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 West Frankfort Armory was built in 1958. The facility has 20,379 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, and latrines. On the day of the survey, a 30' by 40' addition for a weapons vault and storage areas was under construction to expand the armory.

The West Frankfort Armory is the base of operations for Alpha Company 130th Infantry. 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. The West Frankfort Armory had an indoor firing range in the basement that was closed prior to 2001. 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 book sales.

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.

Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. Sample ILWFW1 which was collected in the basement, on the floor in the former bullet trap area, had a lead concentration of 520 ug/ft^2 and a chromium concentration of 300 ug/ft^2. Sample ILWFW2 which was collected in the basement, on the floor in the center of the room, had a lead concentration of 300 ug/ft^2. Sample ILWFW3 which was collected in the basement, on the floor near the entrance, had a lead concentration of 350 ug/ft^2. The West Frankfort 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 West Frankfort Armory. Most of the areas surveyed did not meet minimum illumination requirements.

II. Table of Findings and Recommendations

Findings	*Recommendations*	*RAC*
Surface Samples		
Five samples were collected on representative surfaces in the facility and analyzed for three heavy metals (lead, cadmium and chromium). At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. Sample ILWFW1 which was collected in the basement, on the floor in the former bullet trap area, had a lead concentration of 520 ug/ft^2 and a chromium concentration of 300 ug/ft^2. Sample ILWFW2 which was collected in the basement, on the floor in the center of the room, had a lead concentration of 300 ug/ft^2. Sample ILWFW3 which was collected in the basement, on the floor near the entrance, had a lead concentration of 350 ug/ft^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. 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.	4 4 2
Lighting		
A lighting survey was conducted in the offices and storage areas in the West Frankfort Armory. Most of the areas surveyed did not meet minimum illumination requirements.	Illumination levels should be improved in some office and storage areas.	4

III. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the USPHS, FOH at the Illinois Army National Guard, West Frankfort Armory, located in West Frankfort, Illinois. 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 November 4, 2010.

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.

IV. Site Description

The West Frankfort Armory was built in 1958. The facility has 20,379 square feet of floor space that encompasses a drill floor, offices, classrooms, kitchen, and latrines. The drill floor has a concrete floor, concrete block walls that are about twenty six feet high and a sloped roof that is supported by exposed metal trusses. The office and classroom areas have tile floors, concrete block walls and suspended ceilings. The exterior of the building is brick veneer. On the day of the survey, a 30’ by 40’ addition for a weapons vault and storage areas was under construction to expand the armory.

The West Frankfort Armory is the base of operations for Alpha Company 130th Infantry. 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. The West Frankfort Armory had an indoor firing range in the basement that was closed prior to 2001. 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 book sales.

V. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for heavy metal contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – West Frankfort Armory

VI. Findings, Discussion, and Recommendations

The West Frankfort Armory is the base of operations for Alpha Company 130th Infantry. 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 three heavy metals (lead, cadmium and chromium). Some of the sample results were below the limit of detection for the metals and other results indicated that metals were detected, mostly at lower levels. The results are contained in Table 1.

At present, there are no regulated or recommended levels for surface levels of heavy metals in military facilities. There are no OSHA regulated levels for these heavy metals on surfaces. For the purposes of this report, any level of any metal that exceeds 200 ug/ft^2 is considered significant. Three of the surface wipe sample results exceeded the above criteria. Sample ILWFW1 which was collected in the basement, on the floor in the former bullet trap area, had a lead concentration of 520 ug/ft^2 and a chromium concentration of 300 ug/ft^2. Sample ILWFW2 which was collected in the basement, on the floor in the center of the room, had a lead concentration of 300 ug/ft^2. Sample ILWFW3 which was collected in the basement, on the floor

near the entrance, had a lead concentration of 350 ug/ft^2. The West Frankfort 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
Area Wipe Sampling Results for Metals
Illinois Army National Guard
West Frankfort Armory
West Frankfort, Illinois
November 4, 2010

Analyte	ILWFW1 (ug/ft^2) Basement – at Former Bullet Trap on Floor	ILWFW2 (ug/ft^2) Basement – Center of Room on Floor	ILWFW3 (ug/ft^2) Basement – Near Entrance on Floor
Lead	**520**	**300**	**350**
Cadmium	27	22	50
Chromium	**300**	99	130

Analyte	ILWFW4 (ug/ft^2) Senior Leader's Office - on Desktop	ILWFW5 (ug/ft^2) Orderly Room on Desktop	ILWFW6 (ug/ft^2) Field Blank
Lead	<91	<91	ND
Cadmium	<9.1	<9.1	ND
Chromium	<91	<91	ND

Note:
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 2**)

Figure 2 – Wipe Sample Locations (below)

ILWFW1

ILWFW2

ILWFW3

ILWFW4

ILWFW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the West Frankfort Armory. The results are contained in Table 2. ANSI lighting standards are contained in Table 3.

Table 2
Lighting Survey
Illinois Army National Guard
West Frankfort Armory
West Frankfort, Illinois
November 4, 2010

Location	Illumination (foot candles)
Senior Leader's Office	39
Orderly Room	44
Commander's Office	17
Latrine	22
Training Office	41
Recruiter's Office	45
1st Sergeant's Office	24
Classroom	24-79
Drill Floor	39
Kitchen	60
NBC Room	13
Boiler Room	15
Basement	18
Utility Room	15
Locker Room	8
Men's Latrine	37
Women's Latrine	28

Table 3
Lighting Standards
ANSI Standard RP-7-2001
Recommended Practice for Lighting Industrial Facilities

Location	Minimum foot candles required
Maintenance Bays and Shops	100
Battery Room (or any electrical equipment areas)	100
Offices/Library/Reading Areas	100
Supply or Storage Rooms	30
Break room	30
Inactive areas	5

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office and storage areas.

Recommendation:

Increase the illumination levels in the areas that did not meet minimum illumination requirements. (**RAC 4**)

This survey was conducted by, and report written by Non-Responsive, CIH, CPE as a representative of Federal Occupational Health. This survey report was reviewed by Non-Responsive, Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Technical Assistance: For technical assistance regarding information found in this report or the performed survey please contact the Regional Industrial Hygienist at the NGB ARNG Region West Industrial Hygiene Office.

Appendix A

Illinois Army National Guard State Points of Contact

Non-Responsive
Occupational Health Manager

Non-Responsive
Industrial Hygiene Technician

West Frankfort Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Heavy Metals

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 multiple metals. The cadmium, chromium and lead 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^2 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead, Cadmium, and Chromium

Sampling Site:	NGB: W. Frankfort, IL
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 9817
DFOH Lab Nos.:	TM-11-48230 through TM-11-48235
Date Received:	11/22/10
Data Analyzed:	11/30/10
Date Issued:	12/02/10

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWFW1	TM-11-48230	58	520
ILWFW2	TM-11-48231	33	300
ILWFW3	TM-11-48232	38	350
ILWFW4	TM-11-48233	<10	<91
ILWFW5	TM-11-48234	<10	<91
ILWFW6	TM-11-48235		None Detected

CADMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWFW1	TM-11-48230	3.0	27
ILWFW2	TM-11-48231	2.4	22
ILWFW3	TM-11-48232	5.5	50
ILWFW4	TM-11-48233	<1.0	<9.1
ILWFW5	TM-11-48234	<1.0	<9.1
ILWFW6	TM-11-48235		None Detected

CHROMIUM on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWFW1	TM-11-48230	33	300
ILWFW2	TM-11-48231	11	99
ILWFW3	TM-11-48232	15	130
ILWFW4	TM-11-48233	<10	<91
ILWFW5	TM-11-48234	<10	<91
ILWFW6	TM-11-48235		None Detected

AGENCY	FLOORS	INTERIOR WINDOW SILLS	WINDOW TROUGHS
EPA	40 µg/ft²	250 µg/ft²	400 µg/ft²

Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²
Cadmium	OSHA ID-121	0.5 µg/ft²	1.0 µg/ft²
Chromium	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC ACCREDITED LABORATORY

Project 9817
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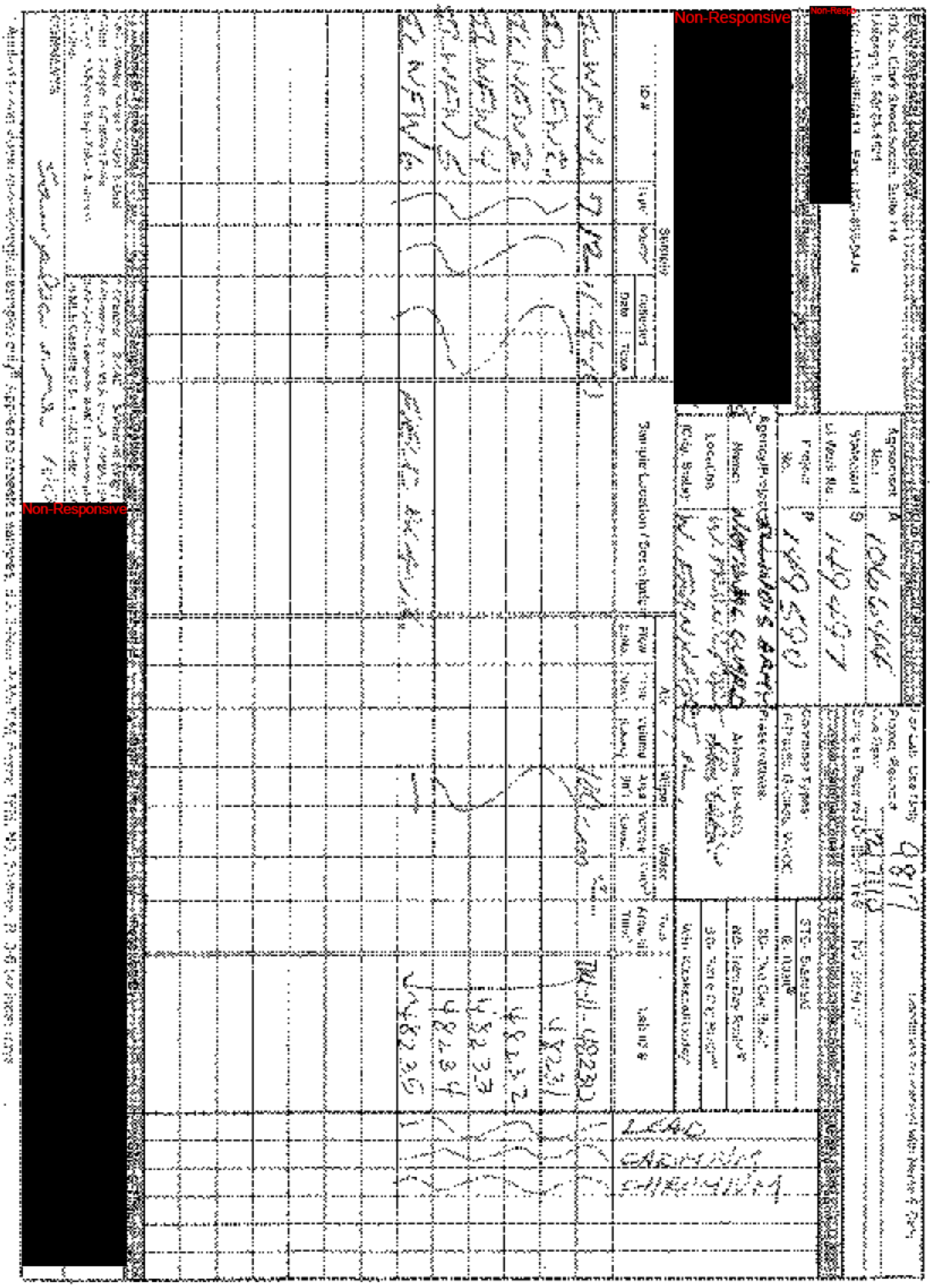

Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
West Frankfort Armory
802 West Main Street
West Frankfort, Illinois

Survey date: December 10, 2012

Performed by

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

January 30, 2013

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I. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, West Frankfort Armory, located in West Frankfort, Illinois. 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 West Frankfort Armory was built in 1958, and has about 20,379 square feet of floor space. The armory is the base of operations for Alpha 2nd 130th Infantry. During the week, most of the activities at the armory involve administrative work. The West Frankfort Armory had an indoor firing range (IFR) in the basement that was closed in 1997 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 has not been used for community activities since 2005.

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. Two of the surface wipe sample results exceeded the NGB criteria for lead. A sample collected in the weight room in the basement near the entrance to the former IFR, had a lead concentration of 420 ug/ft^2. A sample collected in the weight room in the basement near the bullet trap area in the former IFR had a lead concentration of 1,100 ug/ft^2.

Residual surface lead contamination remains from the former indoor firing range in the basement. The site should clean up the residual surface lead contamination in the basement weight room. The 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 West Frankfort Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, West Frankfort Armory, located in West Frankfort, Illinois. 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 December 10, 2012.

The NGB conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The West Frankfort Armory was built in 1958, and has about 20,379 square feet of floor space. The armory is the base of operations for Alpha 2nd 130th Infantry. During the week, most of the activities at the armory involve administrative work. The West Frankfort Armory had an indoor firing range (IFR) in the basement that was closed in 1997 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 has not been used for community activities since 2005.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – West Frankfort Armory

V. Findings, Discussion, and Recommendations

The West Frankfort Armory is the base of operations for Alpha 2nd 130th Infantry. During the week, most of the activities at the armory involve administrative work. The West Frankfort Armory had a firing range in the basement that was closed in 1997 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 has not been used for community activities since 2005.

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.

Two of the surface wipe sample results exceeded the NGB criteria for lead. Sample ILWFW13, which was collected in the weight room in the basement near the entrance to the former IFR, had a lead concentration of 420 ug/ft^2. Sample ILWFW15, which was collected in the weight room in the basement near the bullet trap area in the former IFR had a lead concentration of 1,100 ug/ft^2.

Residual surface lead contamination remains from the former indoor firing range in the basement. The site should clean up the residual surface lead contamination in the basement weight room. The 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
Illinois Army National Guard
West Frankfort Armory
West Frankfort, Illinois
December 10, 2012

Location	Sample Number	Lead Concentration (ug/ft^2)
Drill Floor, on Floor in Center	ILWFW11	<91
Vault, on Gun Rack	ILWFW12	<91
Basement, Former IFR, Near Entrance Area	ILWFW13	**420**
Basement, Former IFR, Center	ILWFW14	140
Basement, Former IFR, Near Bullet Trap Area	ILWFW15	**1,100**
Field Blank	ILWFW16	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^2	Basis for Criteria
Lead	200	NG Pam 420-15

Recommendations:

1. Clean up the residual surface lead contamination in the basement weight room. (**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 ILWFW11

Sample ILWFW12

Sample ILWFW13

Sample ILWFW14

Sample ILWFW15

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the West Frankfort Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
West Frankfort Armory
West Frankfort, Illinois
December 10, 2012

Location	Illumination (foot candles)
Administration Room	21-26
Commander`s Office	38-39
Latrine (NCO)	9-19
Training (NCO)	32-37
Recruiter`s Office	24-38
Sergeant`s Office	10-33
First Sergeant`s Office	24-29
Classroom	55-62
Computer Room	5-32
Storage Area	13-37
Kitchen	46-52
Kitchen Serving Room	28-51
Boiler Room, Basement	18-20
PT Room, Basement	12-30
Drill Floor	10-21
Locker Room	6-20
Latrine, Drill Floor	52-55
Latrine, Female	38-48
Supply Room Office	70-83
Supply Room	14-57

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in some office, support, 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 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

West Frankfort Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead
Sampling Site: NGB: West Frankfort, IL (Armory)
Sample Media: Ghost Wipe(s)®
Method Reference: OSHA ID-121
Project ID: Project 10842
DFOH Lab Nos.: TM-13-58801 through TM-13-58806
Date Received: 12/13/12
Data Analyzed: 12/17/12 - 12/18/12
Date Issued: 12/20/12

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

Project 10842
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FOH ENVIRONMENTAL LABORATORY

536 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWFW11	TM-13-56801	<10	<91
ILWFW12	TM-13-56802	<10	<91
ILWFW13	TM-13-56803	46	420
ILWFW14	TM-13-56804	15	140
ILWFW15	TM-13-56805	120	1100
ILWFW16**	TM-13-56806	<10	

Surface Wipe Sampling Criteria

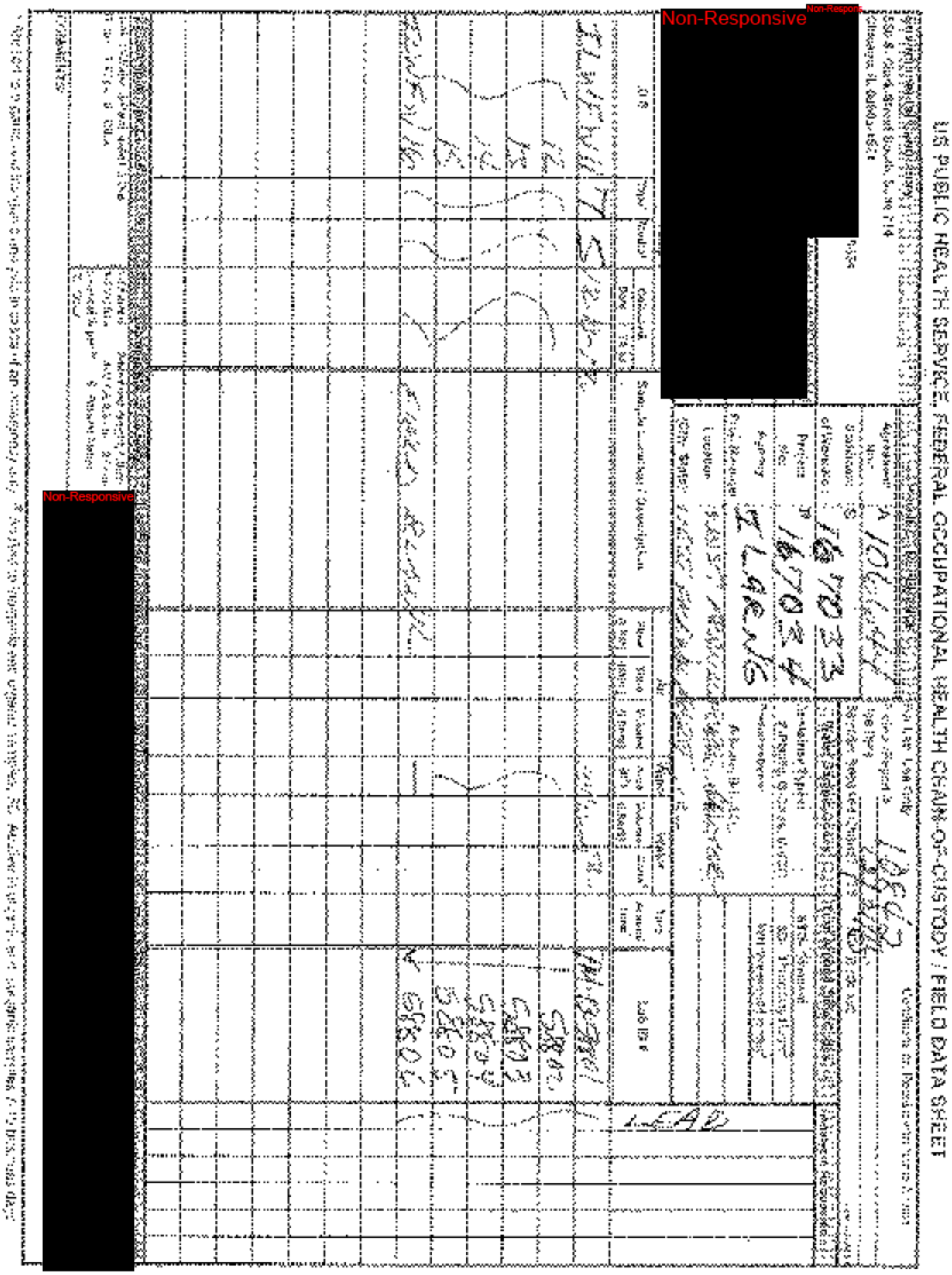
Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

Industrial Hygiene Survey Report

At

Illinois Army National Guard
Woodstock Armory
1301 Sunset Ridge Road
Woodstock, Illinois

Survey date: March 8, 2013

Performed by

Department of the Army
National Guard Bureau
Region West Industrial Hygiene Office
NGB-AVN-S1

April 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. Executive Summary

At the request of the Department of the Army, National Guard Bureau (NGB) field personnel representing the NGB Region West Industrial Hygiene Office conducted an industrial hygiene survey at the Illinois Army National Guard, Woodstock Armory, located in Woodstock, Illinois. 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 Woodstock Armory was built in 1996 and it has about 23,400 square feet of floor space. The armory is the base of operations for Company D, 1 –178th Infantry. 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. The Woodstock Armory has an indoor firing range that was built in 1993. Site personnel reported that it was never used. 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 Boy Scouts Pinewood Derby.

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. A sample collected on the bullet trap in the rifle range had a lead concentration of 473 ug/ft^2. The surface wipe sample results were consistent with an industrial hygiene survey that was performed at the facility on August 10, 2007. That survey identified lead levels on the bullet trap that ranged from 280 ug/ft^2 to 790 ug/ft^2.

The Woodstock 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 Woodstock Armory. Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in most of the offices and storage areas.

II. Introduction

An Occupational Health and Industrial Hygiene Evaluation was conducted by the West Region of the Army National Guard at the Illinois Army National Guard, Woodstock Armory, located in Woodstock, Illinois. 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 8, 2013.

The NGB conducted this survey in the interest of preventing employee illness and in meeting legal obligations where applicable. Based on information provided, every effort was made to conduct a comprehensive survey covering the parameters considered. Results and recommendations are based on information provided, field measurements, and conditions observed during the survey.

III. Site Description

The Woodstock Armory was built in 1996 and it has about 23,400 square feet of floor space. The armory is the base of operations for Company D, 1 –178th Infantry. 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 Woodstock Armory has an indoor firing range that was built in 1993. Site personnel reported that it was never used. 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 Boy Scouts Pinewood Derby.

IV. Scope of Work

The industrial hygiene survey included a walkthrough of the facility and interviews with employees. The survey also included: collecting surface wipe samples for lead contamination and a lighting survey. Photographs were taken, as appropriate.

Figure 1 – Woodstock Armory

V. Findings, Discussion, and Recommendations

The Woodstock Armory is the base of operations for Company D, 1 –178th Infantry. 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 Woodstock Armory has an indoor firing range that was built in 1993. Site personnel reported that it was never used. 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 Boy Scouts Pinewood Derby.

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 ILWOW3, which was collected on the bullet trap in the rifle range had a lead concentration of 473 ug/ft^2. The surface wipe sample results were consistent with an industrial hygiene survey that was performed at the facility on August 10, 2007. That survey identified lead levels on the bullet trap that ranged from 280 ug/ft^2 to 790 ug/ft^2.

The Woodstock 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
Illinois Army National Guard
Woodstock Armory
Woodstock, Illinois
March 8, 2013

Location	Sample #	Lead Concentration (ug/ft^2)
Room 108, Conference Room, on Table	ILWOW1	<91
Rifle Range, Center on Floor	ILWOW2	<91
Rifle Range, on Bullet Trap	ILWOW3	**473**
Vault, on Floor	ILWOW4	<91
Kitchen, on Counter	ILWOW5	<91
Field Blank	ILWOW6	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^2	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 ILWOW1

Sample ILWOW2

Sample ILWOW3

Sample ILWOW4

Sample ILWOW5

Lighting Survey

A lighting survey was conducted in the offices and storage areas in the Woodstock Armory. The results are contained in Table 3. NGB lighting criteria are contained in Table 4.

Table 3
Lighting Survey
Illinois Army National Guard
Woodstock Armory
Woodstock, Illinois
March 8, 2013

Location	Illumination (foot candles)
Room 108, Office	16-30
Room 104, Office	18-23
Room 107, Office	68-83
Drill Floor	6-22
Room 134, Supply Office	44-55
Supply Bay	4-7
Vault	3-7
Kitchen	15-28
Room 138, Food Storage	10-23
Room 138, Scullery	20-44
Room 110B, Weight Room	22-33
Room 110A, Office	26-35
Room 109B, Classroom	30-43
Room 123, Mechanical	11-17
Room 126, Women's Locker	5-28
Room 127, Rifle Range	1-18

Table 4
NGB Lighting Criteria

Location	Minimum Foot Candles Required
Inactive Areas	5
Billet Break Room/Dining Flammable Storage/POL/Waste Handling Latrine/Shower/Locker Mechanical/Electrical Room Storage/Tool/Supply Vault	30
Battery Room Fitness Room IFR/Small Arms Test (at firing line) Kitchen/Assembly Hall/Auditorium Mail Room Maintenance Workbay/Shop Paint Booth/Blast Booth, Paint Mix Room Office/Classroom/Library	50
Instrument Inspection/Repair	70

Sources:
ANSI/IESNA RP-1-04
ANSI/IESNA RP-7-01
NGB Design Guides, 2011

Most of the areas surveyed did not meet minimum illumination requirements. Illumination levels should be improved in most of the 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

Illinois Army National Guard State Points of Contact

Non-Responsive
Industrial Hygiene Technician

Woodstock Armory Point of Contact

Non-Responsive

Appendix B

Methodology and Assessment Criteria

Methods used in this survey to collect surface wipe samples are listed below. The sampling strategy used in this survey was designed to characterize employee exposure to the various contaminants that could be generated from the various activities/tasks performed in the facility. It was based, in part, on information provided by site personnel.

Surface sampling reported in this survey represents the work conditions existing at the time of the survey. Changes in work practices and/or processes may change employee exposure levels. Use of different materials may result in exposure to a different air contaminant.

Surface Sampling – Lead

Surface samples were collected from representative areas using Environmental Express Ghost™ Wipes and templates that encompassed 100 centimeters squared (cm^2) of surface area. The entire area was wiped using an "S" configured motion, the Ghost™ Wipe was then folded in half and the area was again wiped in a direction 90^0 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 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

ANALYTICAL REPORT

Submitted To: USPHS / Federal Occupational Health
Denver Federal Center
Denver, CO 80225

Attention: Non-Responsive

Submitted By:

Reference Data: Lead

Sampling Site:	NGB: Woodstock, IL (Armory)
Sample Media:	Ghost Wipe(s)®
Method Reference:	OSHA ID-121
Project ID:	Project 10974
DFOH Lab Nos.:	TM-13-60045 through TM-13-60050
Date Received:	03/15/13
Data Analyzed:	03/20/13 - 03/21/13
Date Issued:	03/21/13

The wipe samples were hot plate digested. The samples were run on a Perkin Elmer 200 flame atomic absorption spectrophotometer (AA).

General Lab Comments:
All quality control criteria have been met.
* All samples received in condition acceptable for analysis unless otherwise noted.
** Sample results have not been corrected for contamination based on the field blank or other analytical blank unless otherwise noted.

Analytical results are given on the enclosed tables. Results relate only to items tested. If you have any questions about these results, feel free to phone the Laboratory at (312) 886-0413.

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

Project 10974
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FOH ENVIRONMENTAL LABORATORY

538 S. CLARK STREET CHICAGO, IL 60605 PHONE: (312) 886-0413 FAX: (312) 886-0434

LEAD on WIPE RESULTS

SAMPLE NUMBER*	LABORATORY NUMBER	CONCENTRATION (µg)	CONCENTRATION (µg/ft²)
ILWOW1	TM-13-60045	<10	<91
ILWOW2	TM-13-60046	<10	<91
ILWOW3	TM-13-60047	52	473
ILWOW4	TM-13-60048	<10	<91
ILWOW5	TM-13-60049	<10	<91
ILWOW6**	TM-13-60050	<10	

Surface Wipe Sampling Criteria

Metal	Acceptable Surface Level µg/ft	Basis for Criteria
Lead	250	EPA TSCA 40 CFR 745 and HUD Window Sills

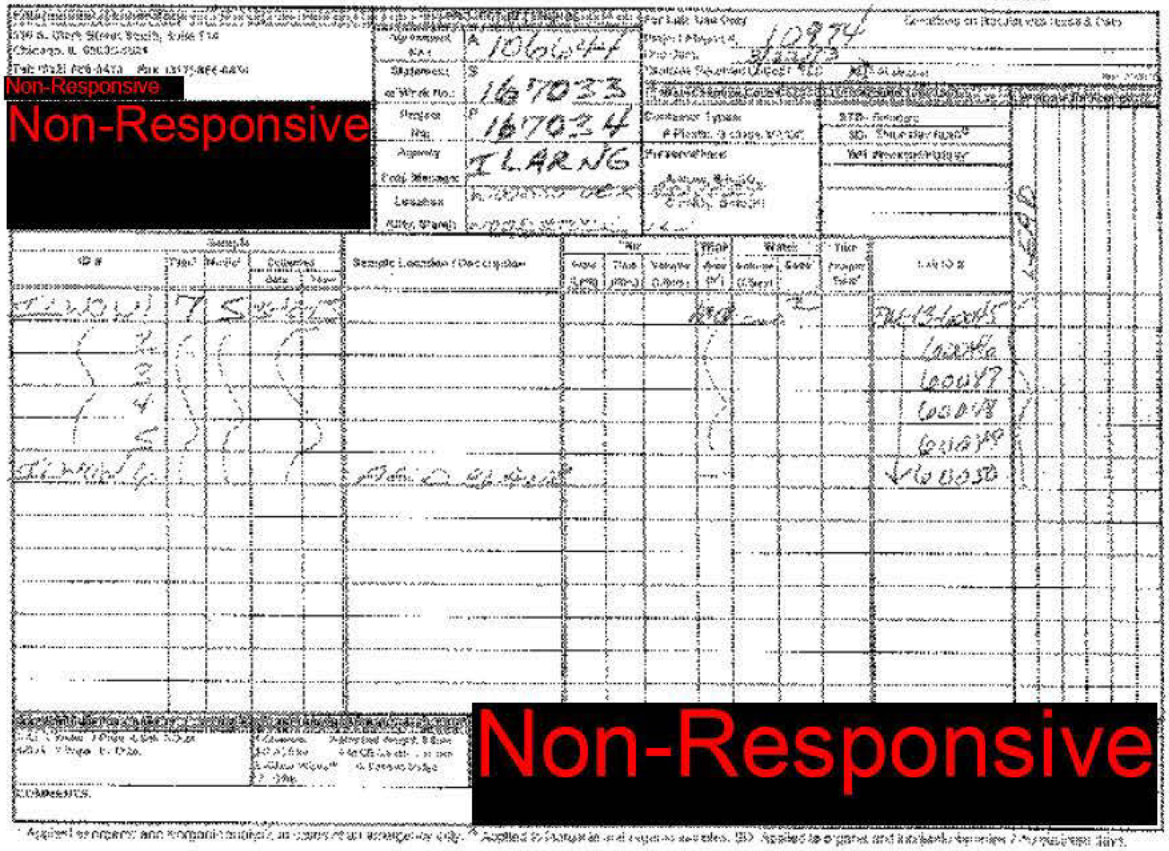
Metals in Wipe Limits
(based on one ft² sampled area)

Analyte	Analytical Method	Method Detection Limit	Minimum Reporting Limit
Lead	OSHA ID-121	5.0 µg/ft²	10 µg/ft²

Non-Responsive

AIHA LAP, LLC
ACCREDITED LABORATORY

US PUBLIC HEALTH SERVICE, FEDERAL OCCUPATIONAL HEALTH CHAIN-OF-CUSTODY / FIELD DATA SHEET



Appendix D

Occupational Health Risk Assessment Codes
(Reference: DOD Letter of Instructions 6055 1)

Occupational health risk assessment codes (RACs) are included in this report to quantify health risks to personnel risk assessment is an expression of health hazard severity and mishap probability, described in terms of route of exposure, actual exposure, exposure limit standards, potential health effects, duration of exposure, and number of exposed personnel The following procedure is used to determine the RACs:

STEP 1: This step assesses points to determine the health hazard severity category (HHSC) The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure

A Exposure Points Assessed

Alternate Route of Exposure		Exposure Conditions			
		<CT	Occasionally >CT	>CT	>STD
AER Possible	NO	0	3	5	7
	YES	1-2	4	6	8

Notes: 1) AER = Alternate exposure route, such as skin absorption or ingestion 2) CT = DoD component threshold that triggers surveillance actions, such as action level 3) STD = DoD exposure limit, such as TLV or PEL 4) > = Greater than 5) < = Less than 6) ≤ = Less than or equal to

B Medical Effects Points Assessed

Condition	Points
No medical effects, such as nuisance noise and nuisance odor	0
Temporary reversible illness requiring supportive treatment, such as eye irritation and sore throat	1-2
Temporary reversible illness with a variable but limited period of disability, such as metal fume fever	3-4
Permanent, nonsevere illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling, irreversible illness or death, such as asbestosis or lung cancer	7-8

C The HHSC is determined by totaling the points assessed and using the following guide

Total Points*	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

* Sum of A and B above

STEP 2: This step uses the following guidelines to assess points to determine the mishap probability category (MPC) for health hazards The probability of mishap reflects the duration of exposure and the number of exposed personnel

A Duration of Exposure Points Assessed

Type of Exposure	Length of Exposure		
	1-8 hr/wk	>8 hr/wk/not continuous	Continuous
Irregular/Intermittent	1-2	4-6	NA
Regular/Periodic	2-3	5-7	8

B Number of Exposed personnel Points Assessed

Number of Exposed Personnel	Points
<5	1-2
5-9	3-4
10-49	5-6
>49	7-8

C The MPC for health hazards is determined by totaling the points assessed and using the following guide:

Total Points*	MPC
14-16	A
10-13	B
5-9	C
<5	D

* Sum of A and B above

STEP 3: The RAC is determined using the following matrix:

HHSC	MPC			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5