

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

b. Methodology. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

5. FINDINGS AND DISCUSSION.

a. Wipe Sampling.

(1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). While not legally applicable, this serves as a useful guideline (Reference 1b).

(2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, seven were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard.

b. Stored Materials. Multiple items were stored in both the IFR itself and the Plenum area (Appendix C, Figures C-1 thru C-11). IAW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). Excluded from cleaning are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

6. RECOMMENDATIONS.

a. Decontamination Requirements. Clean and decontaminate the IFR IAW NG Pam 420-15, Section 3-2 (reference 1b). (RAC 3)

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b). (RAC 4)

NGB-ARS-IHNE

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(2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b).
(RAC 4)

7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Port Murray IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. **Non-Responsive** Regional Industrial Hygienist, (410) 942-0273 ext 3.

Non-Responsive

1LT, MS
Environmental Engineer

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

APPENDIX A
DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, 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

AER POSSIBLE?	Exposure Conditions			
	< AL	Occasionally > AL Always < OEL	> AL < = OEL	> OEL
NO	0	3	5	7
YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, 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, non-severe illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer	7-8

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

- c. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.

- a. Duration of Exposure Points Assessed

Type of Exposure	Exposure Duration		
	1-8 hr/wk	> 8hr/wk, not continuous	Continuous
Irregular, intermittent	1-2	4-6	-
Regular, periodic	2-3	5-7	8

- b. Number of Exposed Personnel Points Assessed

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

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	IPC
14-16	A
10-13	B
5-9	C
<5	D

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

HEALTH HAZARD SEVERITY CODE	ILLNESS PROBABILITY CODE			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

From Table 2 of Department of Defense Instruction 6055.1,
Department of Defense Occupational Safety and Health Program, 19 August 1998
(reference 1).

4. RAC DESCRIPTOR

RAC	DESCRIPTOR
1	CRITICAL
2	SERIOUS
3	MODERATE
4	MINOR
5	NEGLECTIBLE

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

APPENDIX B WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Port Murray IFR 20 March 2008

Sample Number	Location	Results $\mu\text{g}/\text{ft}^2$^a	Std. $\mu\text{g}/\text{ft}^2$	Met Std.
1C	IFR Floor near Bullet Trap	2400	200	No
2C	IFR Bullet Trap	3500	200	No
3C	IFR Floor along right wall near Bullet Trap	460	200	No
4C	IFR Floor near drain	220	200	No
5C	IFR on top of footlocker	< 110	200	Yes
6C	IFR Floor along right wall	980	200	No
7C	Folding Table at firing line	400	200	No
8C	IFR Plenum on Floor	260	200	No
9C	Floor in front of entrance door to IFR	< 110	200	Yes
10C	IFR top of steel locker near firing line	< 110	200	Yes

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

APPENDIX C
Photographs



Figure C-1. Port Murray IFR being used as a storage area.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.



Figure C-2. Wipe sample taken on IFR floor near the Bullet Trap



Figure C-3. Wipe sample taken on IFR Bullet Trap

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.



Figure C-4. Wipe sample taken on IFR floor along right wall near Bullet Trap



Figure C-5. Wipe sample taken on IFR floor near drain

NGB-ARS-IHNE

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Figure C-6. Wipe sample taken on top of footlocker



Figure C-7. Wipe sample taken on IFR floor along right wall

NGB-ARS-IHNE

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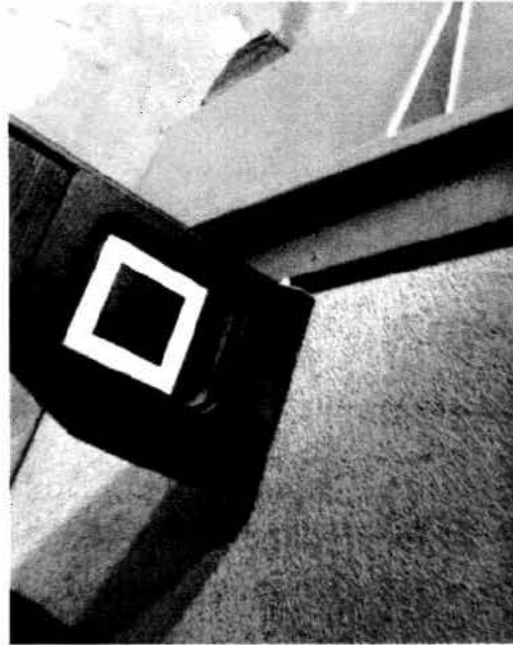


Figure C-8. Wipe sample taken on the folding table at the firing line



Figure C-9. Wipe sample taken on IFR Plenum on floor.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Port Murray, New Jersey Army National Guard, 20 March 2008.

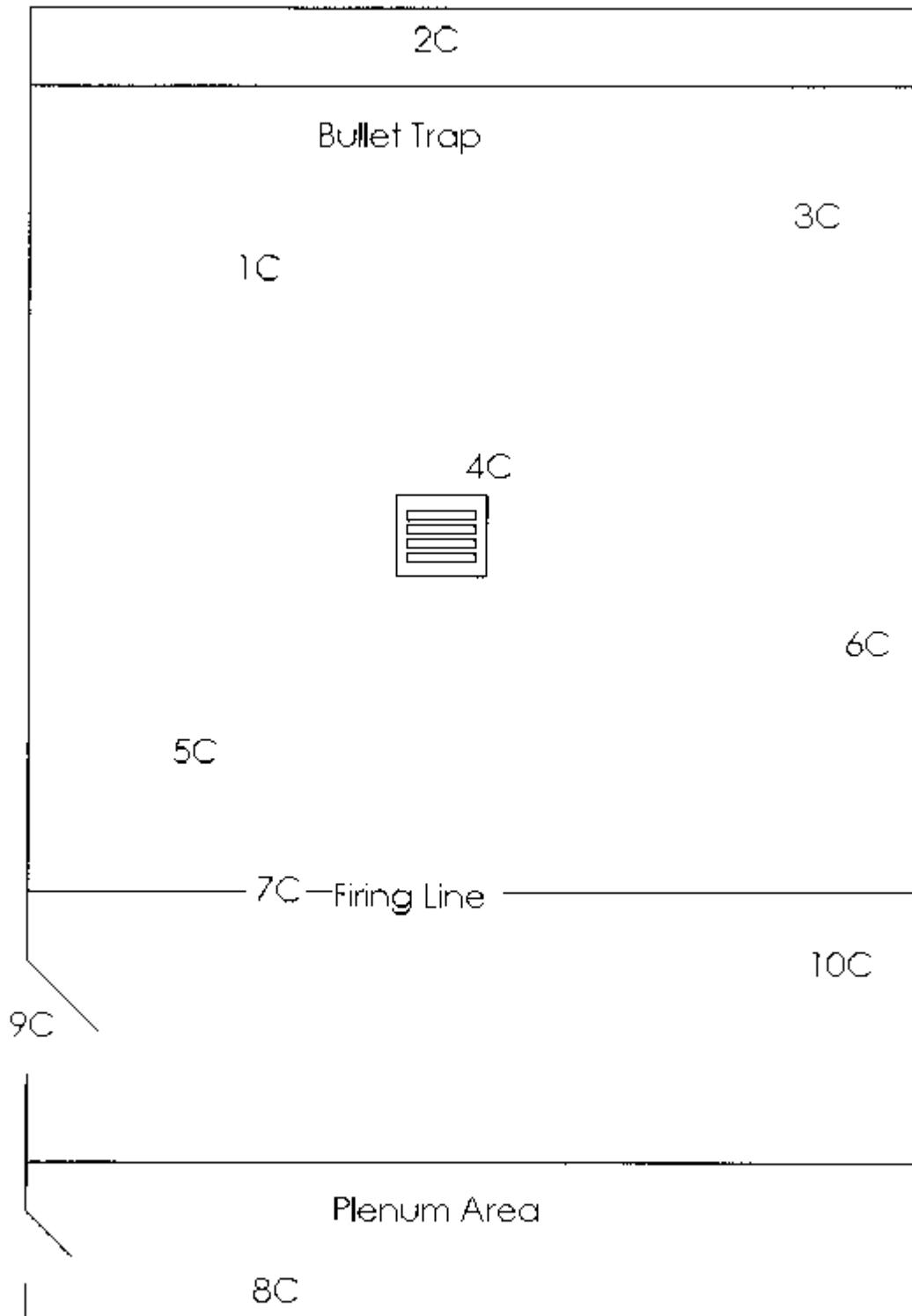


Figure C-10. Wipe sample taken on floor in front of entrance door to IFR



Figure C-11. Wipe sample taken on top of steel locker near firing line

Figure 1. Diagram of Wipe Samples for Port Murray IFR 20 March 2008



NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078

NGB-AVS-SI

10 April 2001

MEMORANDUM FOR The NJARNG, Safety and Occupational Health Office
ATTN: SAAO-SM, Trenton-Mercer Airport, 152 Scotch
Road, West Trenton, NJ 08628

SUBJECT: Evaluation of Indoor Firing Range

1. References. See Appendix A.

2. General.

a. Ms. **Non-Responsive** NGB, Army National Guard, Regional Industrial Hygienist performed an Indoor Rifle Range evaluation at Sea Girt, NJ. Mr. **Non-Responsive**, CIH and Mr. **Non-Responsive** IHIT, Industrial Hygienists from the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) assisted in the evaluation. The survey was conducted 21 February 2001.

b. Exposure and ventilation standards used in this report are the most stringent of those found in Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) or NGB, All States Letter Log Number (P00-0059); Subject: ARNG – Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges.

c. Risk Assessment Codes (RACs) are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix B of this report.

3. Background.

a. This range has been completely renovated from an existing 50 feet indoor firing range. The new range is a 4 lane, 25 meter indoor rifle range with a

NGB-AVS-SI

Subject: Evaluation of Indoor Firing Range

lubricated Snail™ bullet trap. A computer automated control room has been installed behind the plenum section. An individual operating in this room monitors firers and can retrieve targets.

4. Findings and Discussion.

a. Range Classification. This range is classified as "**SAFE**" based upon ventilation and air sampling results.

b. Ventilation.

(1) The cross-sectional area of the range was measured to be 155 square feet (ft²). Air is introduced into a 1.5 ft wide by 7.75 ft high plenum wall. Air is exhausted downrange behind the bullet trap. "Smoke testing" of the range revealed laminar flow of air.

(2) Blueprint readings on the supply and exhaust fans were 12,000 CFM and 13,280 CFM, respectively. These fan speeds allow for the range to be under negative pressure, as required.

(3) The average velocity at the firing line was measured to be 78 feet per minute (FPM) which exceeds the minimum average of 50 FPM as required by the NGB All States Letter.

(4) The static pressure of the range was measured to be - 0.6 inches water gage (w.g.) pressure from the range vestibule area. The recommended static pressure is between -0.05 and -0.15 inches w.g.

(5) The amperage was measured on the three phase exhaust and supply fans. The amperage for the supply fan was approximately 34 which was consistent with design criteria. The exhaust fan was measured at approximately 22 amps, this is about 10 percent below design specifications. Speeding up the exhaust fan will help decrease the static pressure in the range.

(6) The plenum wall was constructed of Lexan™ panels with 3/8 inch diameter holes. The average airflow through the plenum wall was measured to be 2530 FPM and was uniform and laminar.

c. Air Sampling Results. Air samples were collected and analyzed for airborne concentrations of inorganic lead fume and dust. Air sample results can be found in Appendix C. Personal breathing zone (BZ) air samples were collected on all four firers. General area (GA) air samples were collected 8 ft. 9

NGB-AVS-SI

Subject: Evaluation of Indoor Firing Range

inches behind the firing line on the plenum wall behind lanes 2 and 3. Air sample results are reported as a time weighted average (TWA) for an 8 hour exposure and have been compared to the OSHA PEL-TWA standard of 0.05 milligrams per cubic centimeter (mg/m^3), the inorganic lead action level of $0.03 \text{ mg}/\text{m}^3$ and the exposure limits listed in All States Memorandum (Log Number P00-0059) Figure 1-1. Air sample results did not exceed either the OSHA standard or the standard listed in the All States Letter. Personnel fired approximately 820 rounds of 5.56 millimeter ammunition from M16A2 rifles. The sampling period was 77 minutes. Sample results can be found in Appendix C.

d. Other Areas of Concern.

(1) Acoustical tile was installed on the ceiling in front of the firing line. This material will not help to eliminate any noise and may harbor dangerous lead dust and other contaminants in the future.

(2) Door sweeps and insulation around the door was installed prior to firing.

(3) A SOP needs to be developed and distributed or made available to all users and maintenance personnel.

(4) Light could be seen at the top of the bullet trap around the 3rd and 4th firing lanes. The bullet trap needs to be flush with the ceiling.

(5) An adjustable door stop needs to be installed in the door leading to the range. This will help to eliminate the door closing too quickly because of the high static pressure in the range.

(6) Additional signs have to be installed prior to opening the range for continuous use. Signs such as high noise hazard and no dry sweeping of the range should be installed.

(7) The range should be limited to 9 mm ammunition. If individuals are unsure of the caliber of ammunition that can be fired on the range, this office or the NJARNG Safety and Occupational Health Office can be contacted for assistance on the selection of correct ammunition.

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Subject: Evaluation of Indoor Firing Range

5. Recommendations.

- a. Remove the ceiling acoustical tile in front of the firing line. (RAC 4)
- b. Develop a SOP and staff the document through the NJARNG Safety Office and enforce the procedures prescribed within. (RAC 3) [AR 385-63]
- c. Ensure the backstop is flush with the ceiling. (RAC 2)
- d. Install an adjustable doorstop on the door leading into the range. (RAC 3)
- e. Ensure all warning signs are posted as required. (RAC 3)
- e. Adjust the speed of the exhaust fan so that the amperage is closer to design specifications. (RAC 3)

6. Request a reply by endorsement on the corrective action taken on the aforementioned deficiencies by 10 July 2001.

7. The point of contact is the undersigned and can be reached at (410) 942-0273, ext. 12.

Non-Responsive

Regional Industrial Hygienist

APPENDIX A REFERENCES

1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, October 1998.
2. AR 40-5, Preventive Medicine, 15 October 1990.
3. TB MED 503, Occupational and Environmental Health, The Army Industrial Hygiene Program, February 1985.
4. NG PAM 385-14, Safety Evaluation of Indoor Firing Ranges, (DRAFT).
5. NGB, All States Letter Log Number (P00-0059); Subject: ARNG -- Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges.
7. NGB Design Guide (DG) 415-1, Design Guide for Armories, Current.
6. Title 29 Code of Federal Regulations, 2001, Revision, Part 1910, Occupational Safety and Health Standards.
7. American Conference of Governmental Industrial Hygienists, Threshold Limit Values (TLVs) for Chemical Substances and Biological Exposure Indices for 2000-2001.

APPENDIX B
DERIVING RISK ASSESSMENT CODES (RACs)
FOR HEALTH HAZARDS
(Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT ≤STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion

CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, \ parts per million

STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

<u>Condition</u>	<u>Points</u>
No medical effect, 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 and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>HHSC</u>
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, 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

		<u>Length of Exposure</u>	
		1-8 hr/wk not continuous	>8 hr/wk continuous
<u>Type of Exposure</u>	Irregular, intermittent	1-2	4-6
	Regular, periodic	2-3	5-7
			8

B. Number of Exposed Personnel Points Assessed

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

B-2

- c. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>MPC</u>
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

MISHAP PROBABILITY

		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

APPENDIX C

AIR SAMPLE RESULTS AND ANALYSIS

Results of Lead Air Sampling During Firing 21 February 2001
Sea Girt, NJ Armory

Firer/Location	Type	Sample Number	Time (Mins)	Lead ug/sample	Lead mg/m ³	Lead TWA ₈ mg/m ³
Lane 1	BZ	1	77	ND	<0.008	<0.0013
Lane 2	BZ	2	77	ND	<0.007	<0.0011
Lane 3	BZ	3	77	ND	<0.008	<0.0013
Lane 4	BZ	4	77	ND	<0.008	<0.0013
Plenum Lane 3	GA	5	77	ND	<0.008	<0.0013
Plenum Lane 2	GA	6	77	ND	<0.008	<0.0013
Outside Door	GA	7	77	ND	<0.008	<0.0013
Reloader	BZ	8	77	ND	<0.008	<0.0013
Blank	N/A	9	N/A	ND	N/A	N/A

The OSHA PEL-TWA₈ for lead is 0.05 mg/m³

ND indicates the value is below the reporting limit

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ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078

NGB-AVS-SI

25 March 2003

MEMORANDUM FOR The NJARNG, Safety and Occupational Health Office
ATTN: SAAO-SM, Trenton-Mercer Airport, 152 Scotch
Road, West Trenton, NJ 08628

SUBJECT: Evaluation of Indoor Firing Range

1. References. See Appendix A.

2. General.

a. Ms. **Non-Responsive** NGB, Army National Guard, Regional Industrial Hygienist and **Non-Responsive** performed an Indoor Rifle Range evaluation at Sea Girt, NJ. The survey was conducted 12 December 2002.

b. Exposure and ventilation standards used in this report are the most stringent of those found in Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) or NGB, All States Letter Log Number (P02-0033); Subject: ARNG – Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges (IFR) and Guidelines for IFR Rehabilitation, Conversion and Cleaning.

c. Risk Assessment Codes (RACs) are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix B of this report.

3. Background. This range has been completely renovated from an existing 50 feet indoor firing range. The new range is a 4 lane, 25 meter indoor rifle range

NGB-AVS-SI

SUBJECT: Evaluation of Indoor Firing Range

with in lubricated Snail™ bullet trap. A computer automated control room has been installed behind the plenum section. An individual operating in this room monitors firers and can retrieve targets.

4. Findings and Discussion.

a. Range Classification. This range is classified as "LIMITED USE" based upon ventilation, air sampling results and the improper installation of the bullet trap.

b. Ventilation.

(1) The cross-sectional area of the range was measured to be 155 square feet (ft²). Air is introduced into a 1.5 ft wide by 7.75 ft high plenum wall. Air is exhausted downrange behind the bullet trap. "Smoke testing" of the range revealed laminar flow of air.

(2) Blueprint readings on the supply and exhaust fans were 12,000 CFM and 13,280 CFM, respectfully. These fan speeds allow for the range to be under negative pressure, as required.

(3) The average velocity at the firing line was measured to be 65 feet per minute (FPM) which exceeds the minimum average of 50 FPM as required by the NGB All States Letter.

(4) The static pressure of the range was measured to be - 0.04 inches water gage (w.g.) pressure from the range vestibule area. The recommended static pressure is between -0.05 and -0.15 inches w.g.

(5) The plenum wall was constructed of Lexan™ panels with 3/8 inch diameter holes. The airflow through the plenum wall was uniform and laminar.

c. Air Sample Results.

(1) Air samples were collected and analyzed for airborne concentrations of inorganic lead fume and beryllium. Air sample results can be found in Appendix C. Personal breathing zone (BZ) air samples were collected on all firers. General area (GA) air samples were collected 8 ft. 9 inches behind the firing line on the plenum wall behind lanes 2 and 3. Air sample results are reported as a time weighted average (TWA) for an 8 hour exposure and have been compared to the OSHA PEL-TWA standard of 0.05 milligrams per cubic meter (mg/m³), the inorganic lead action level of 0.03 mg/m³ and the exposure

NGB-AVS-SI

SUBJECT: Evaluation of Indoor Firing Range

limits listed in All States Memorandum (Log Number P02-0033) Figure 1-1. The OSHA PEL-TWA for beryllium is 0.002 mg/m³. Air sample results did not exceed either the OSHA standards but did exceed the lead standard in lane 4 of the All States Letter, Figure 1-1 used to decide how long an individual can fire on the range.

(2) Personnel fired approximately 1296 rounds of full metal jacketed 9 millimeter ammunition. The sampling period was 77 minutes. Sample results can be found in Appendix C.

d. Other Areas of Concern.

(1) Acoustical tile was installed on the ceiling in front of the firing line. This material will not help to eliminate any noise and may harbor dangerous lead dust and other contaminants in the future.

(2) A SOP needs to be developed and distributed or made available to all users and maintenance personnel.

(3) Light could be seen at the top of the bullet trap around the 3rd and 4th firing lanes. The bullet trap needs to be flush with the ceiling. This deficiency could permit a bullet to penetrate the area behind the bullet trap.

(4) The range should be limited to 9 mm ammunition. If individuals are unsure of the caliber of ammunition that can be fired on the range, this office or the NJARNG Safety and Occupational Health Office can be contacted for assistance on the selection of correct ammunition.

5. Recommendations.

a. Remove the ceiling acoustical tile in front of the firing line. Repeat Deficiency (RAC 4)

b. Develop a SOP and staff the document through the NJARNG Safety Office and enforce the procedures prescribed within. Repeat Deficiency (RAC 3) [AR 385-63]

c. Ensure the bullet trap is flush with the ceiling in lanes 3 and 4. Repeat Deficiency (RAC 2)

d. Limit the amount of firing time to Guardsmen on marksmanship teams or Guardsmen exposed more than 30 days per year and all non-military personnel

NGB-AVS-SI

SUBJECT: Evaluation of Indoor Firing Range

to 6 hours of firing per day. In addition it limits the shooting time to 3 hours for individuals 17 years of age or younger. (RAC 2) All States (Log number P02-0033) Figure 1-1.

6. Request a reply by endorsement on the corrective action taken on the aforementioned deficiencies by 25 June 2003.

7. The point of contact is the undersigned and can be reached at (410) 942-0273, ext. 12.

Non-Responsive

Regional Industrial Hygienist

APPENDIX A REFERENCES

1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, October 1998.
2. AR 40-5, Preventive Medicine, 15 October 1990.
3. DA PAM 40-503, Medical Services, Industrial Hygiene Program, 30 October 2000.
4. NGB, All States Letter Log Number (P02-0033); Subject: ARNG – Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges.
5. NGB Design Guide (DG) 415-1, Design Guide for Armories, Current.
6. Title 29, Code of Federal Regulations, 2002, Revision, Part 1910, Occupational Safety and Health Standards.
7. American Conference of Governmental Industrial Hygienists, Threshold Limit Values (TLVs) for Chemical Substances and Biological Exposure Indices for 2002.

APPENDIX B
DERIVING RISK ASSESSMENT CODES (RACs)
FOR HEALTH HAZARDS
(Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT ≤STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion

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STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

<u>Condition</u>	<u>Points</u>
No medical effect, such as nuisance noise and nuisance odor	0
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Permanent, severe, disabling, irreversible illness or death, such as asbestosis and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>HHSC</u>
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, 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

		<u>Length of Exposure</u>		
		1-8 hr/wk not continuous	>8 hr/wk continuous	
Type of Exposure	Irregular, intermittent	1-2	4-6	-
	Regular, periodic	2-3	5-7	8

B. Number of Exposed Personnel Points Assessed

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

B-2

- c. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>MPC</u>
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

		MISHAP PROBABILITY			
		A	B	C	D
HAZARD SEVERITY	I	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

APPENDIX C

AIR SAMPLE RESULTS AND ANALYSES

Results of Inorganic Lead Air Sampling During Firing 12 December 2002
Sea Girt, NJ Armory

Firier/Location	Type	Sample Number	Time (Mins)	Lead ug/sample	Lead mg/m ³	Lead TWA ₈ mg/m ³
Lane 1	BZ	1	90	4	0.02	0.004
Lane 2	BZ	2	90	5	0.02	0.004
Lane 3	BZ	3	90	7	0.03	0.006
Lane 4	BZ	4	90	10	0.037	0.007
Plenum Lane 2	GA	5	90	ND	<0.004	<0.0008
Plenum Lane 3	GA	6	90	ND	<0.004	<0.0008
In Observation Room	GA	7	90	ND	<0.004	<0.0008
Blank	N/A	8	N/A	ND	N/A	N/A

The OSHA PEL-TWA₈ for lead is 0.05 mg/m³
 ND indicates the value is below the reporting limit

Results of Beryllium Air Sampling During Firing 12 December 2002

Firier/Location	Type	Sample Number	Time (Mins)	Beryllium ug/sample	Beryllium mg/m ³	Beryllium TWA ₈ mg/m ³
Lane 1	BZ	1	90	ND	<0.002	<0.0004
Lane 2	BZ	2	90	ND	<0.002	<0.0004
Lane 3	BZ	3	90	ND	<0.002	<0.0004
Lane 4	BZ	4	90	ND	<0.002	<0.0004
Plenum Lane 2	GA	5	90	ND	<0.002	<0.0004
Plenum Lane 3	GA	6	90	ND	<0.002	<0.0004
In Observation Room	GA	7	90	ND	<0.002	<0.0004
Blank	N/A	8	N/A	ND	N/A	N/A

The OSHA PEL-TWA₈ for beryllium is 0.002 mg/m³
 ND indicates the value is below the reporting limit

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NGB ARNG
REGION NORTH IH OFFICE
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078

trial Hygiene Air Sample Sheet

02-S-6103

BEST AVAILABLE COPY

Contact (name/phone #) 410 942 0254-FAX
410 942 0273 x12

Non-Responsive

Samples Collected By

Non-Responsive

Sampled Facility NJ ARNG ARMORY City Sea Girt State NJ Location (bldg/area) IFR
Description of Operation IFR 7 Persons Exposed 1.5 Hrs/Day Method of Collection CLOSED FACE 37mm CE FILTER

Analysis Desired

LEAD, BERYLLIUM

36399

02-36396 36397 36398 Sampling Data 36400 36401 36402 36403

Sample No.	1	2	3	4	5	6	7	8
Pump No.	7658	8348	8349	8324	7605	7600	8241	B
Time On	1225	1225	1225	1225	1225	1225	1225	L
Time Off	1355	1355	1355	1355	1355	1355	1355	A
Total Time (min)	90	90	90	90	90	90	90	N
Flow Rate (LPM)	2.8	3.0	2.9	3.0	3.0	3.0	3.0	K
Volume (liters)	252	270	261	270	270	270	270	
GA/BZ	BZ	BZ	BZ	BZ	GA	GA	GA	
Employee Name/ID	LANE 1	LANE 2	LANE 3	LANE 4	LANE 2 PLENUM	LANE 3 PLENUM	CONTROL ROOM	
Laboratory No.								

Calibration Information

Pump No.	Calibration (LPM)		Rotameter Setting	Date
	Pre-Use	Post-Use		
7658	2.817	2.721	3	12 DEC 2002
8348	2.984	2.963	3	"
8349	2.935	2.944	3	"
8324	3.063	3.048	3	"
7605	2.991	2.892	3	"
7600	3.043	2.948	3	"
8241	3.030	2.932	3	"

Name of Calibrator S/N B1827 Calibration Date Pump Manufacturer
DRYCAL DC-1B REV 2.06F BIOS

Comments to Lab:

DRYCAL MED CELL DC-MC-1 REV B. S/N S1745

10/19/01

Non-Responsive



TEST REPORT
Page 1 of 2
12/27/02

Submitted To: **Non-Responsive**

Army National Guard Bureau
301- IH Old Bay Lane; Attn: NGB-AVN-SI
Havre de Grace, MD 21078

Reference Data:	Metals
Client Sample No.:	1 through 8
P.O. No.:	VISA
Sample Location:	NJARNG ARMORY
Sample Type:	Filter
Method Reference:	NIOSH 7300
DCL Set ID No.:	02-S-6103
DCL Sample ID No.:	02-36396 through 02-36403
Sample Receipt Date:	12/18/2002
Preparation Date:	12/20/02
Analysis Date:	12/20/02

The samples were prepared and analyzed in accordance with NIOSH method 7300 using a Perkin Elmer 3000XL (ICP) purged spectrometer.

The sample condition upon receipt was acceptable except where noted.

The results are in the enclosed data table. Results relate only to the items tested and are not blank corrected except when clearly indicated.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Non-Responsive

Analyst

Non-Responsive

Reviewer

CINCINNATI OFFICE
4388 GLENDALE-MILFORD ROAD
CINCINNATI, OHIO 45242-3706
513 733-5336, FAX 513 733-5347

WEST COAST OFFICE
11 SANTA YORBA COURT
NOVATO, CALIFORNIA 94945
800 260-9071, FAX 415 893-9469

Results µg/Filter

Client #	1	2	3	4	5	
DCL #	02-36396	02-36397	02-36398	02-36399	02-36400	LOD
Beryllium	ND	ND	ND	ND	ND	0.5
Lead	4.	5.	7.	10.	ND	1.

ND indicates the value was not detected at or above the limit of detection (LOD).

Results µg/Filter

Client #	6	7	8		% Recovery	
DCL #	02-36401	02-36402	02-36403	Prep Blank	LCS	LOD
Beryllium	ND	ND	ND	ND	104.	0.5
Lead	ND	ND	ND	ND	105.	1.

ND indicates the value was not detected at or above the limit of detection (LOD).

LCS stands for laboratory control sample.

Results mg/m³

Client #	1	2	3	4	5
DCL #	02-36396	02-36397	02-36398	02-36399	02-36400
Volume (L)	252	270	261	270	270
Beryllium	<0.002	<0.002	<0.002	<0.002	<0.002
Lead	0.02	0.02	0.03	0.037	<0.004

Results mg/m³

Client #	6	7	8		
DCL #	02-36401	02-36402	02-36403		
Volume (L)	270	270	0		
Beryllium	<0.002	<0.002	-		
Lead	<0.004	<0.004	-		

Non-Responsive

Analyst

Non-Responsive

Reviewer

Industrial Hygiene Air Sample Sheet

Return Address: BEST AVAILABLE COPY Contact (name/phone #) 410 942 0254 FAX 410 942 0273 x12

Non-Responsive

Samples Collected By: Non-Responsive

Sampled Facility: NJ ARNG ARMORY City: Sea Girt State: NJ Location (bldg/area): IFR

Description of Operation: IFR 7 Persons Exposed 1.5 Hrs/Day Method of Collection: CLOSED FACE 37mm CE FILTER

Analysis Desired: LEAD, BERRILIUM

Sampling Data

Sample No.	1	2	3	4	5	6	7	8
Pump No.	7658	8348	8349	8324	7605	7600	8241	B
Time On	1225	1225	1225	1225	1225	1225	1225	L
Time Off	1355	1355	1355	1355	1355	1355	1355	A
Total Time (min)	90	90	90	90	90	90	90	N
Flow Rate (LPM)	2.8	3.0	2.9	3.0	3.0	3.0	3.0	K
Volume (liters)	252	270	261	270	270	270	270	
GA/BZ	BZ	BZ	BZ	BZ	GA	GA	GA	
Employee Name/ID	LANE 1	LANE 2	LANE 3	LANE 4	LANE 2 PLENUM	LANE 3 PLENUM	CONTROL ROOM	
Laboratory No.								

Calibration Information

Pump No.	Calibration (LPM)		Rotameter Setting	Date
	Pre-Use	Post-Use		
7658	2.817	2.721	3	12 DEC 2002
8348	2.984	2.963	3	"
8349	2.935	2.944	3	"
8324	3.063	3.048	3	"
7605	2.991	2.892	3	"
7600	3.043	2.948	3	"
8241	3.030	2.932	3	"

Name of Calibrator: S/N 31827 DRYCAL DC-1B REV 2.06F Calibration Date: Pump Manufacturer: B105

Comments to Lab: DRYCAL MED CELL DC-HC-1 REV B. S/N 51745

10/19/01

**NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-ARS-IHNE
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078**

NGB-ARS-IHNE (40-5f)

16 April 2008

**EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
SEA GIRT, NJ
19 March 2008**

1. **PURPOSE.** The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Sea Girt IFR.

2. **CONCLUSIONS.** Potential lead hazard risks associated with the equipment stored in the inactive Sea Girt IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

3. **FINDINGS AND RECOMMENDATIONS.**

a. **Decontamination Requirements.** A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, six were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2. **(RAC 3)**

b. **Stored Materials.** Multiple items were stored in both the IFR and Plenum Area (Appendix C, Figures C-1 thru C-10). **(RAC 3)**

(1) **Cleaning Requirements.** Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). **(RAC 4)**

(2) **Porous Materials.** Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. **(RAC 4)**

INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
SEA GIRT, NJ
19 March 2008

1. REFERENCES.

a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.

b. National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

2. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Sea Girt IFR.

3. GENERAL.

a. Survey Personnel. This survey was conducted 19 March 2008 by 1LT **Non-Responsive** and 1LT **Non-Responsive** both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.

b. Risk Assessment Codes (RACs). RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.

c. Background. CW2 **Non-Responsive** NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Sea Girt IFR to assess any possible inhalation hazards as a result of lead dust contamination.

4. METHODOLOGY.

a. Assessment Criteria. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

b. Methodology. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

5. FINDINGS AND DISCUSSION.

a. Wipe Sampling.

(1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). While not legally applicable, this serves as a useful guideline (Reference 1b).

(2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, six were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard.

b. Stored Materials. Multiple items were stored in both the IFR itself and Plenum Area (Appendix C, Figures C-1 thru C-10). IAW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). Excluded from cleaning are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

6. RECOMMENDATIONS.

a. Decontamination Requirements. Clean and decontaminate the IFR IAW NG Pam 420-15, Section 3-2 (reference 1b). (RAC 3)

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b). (RAC 4)

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

(2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b).
(RAC 4)

7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Sea Girt IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. **Non-Responsive** Regional Industrial Hygienist, (410) 942-0273 ext 3.

Non-Responsive

1LT, MS
Environmental Engineer

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

APPENDIX A

DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, 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

AER POSSIBLE?	Exposure Conditions			
	< AL	Occasionally > AL Always < OEL	> AL < = OEL	> OEL
NO	0	3	5	7
YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, 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, non-severe illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer	7-8

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

- c. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.

- a. Duration of Exposure Points Assessed

Type of Exposure	Exposure Duration		
	1-8 hr/wk	> 8hr/wk, not continuous	Continuous
Irregular, intermittent	1-2	4-6	-
Regular, periodic	2-3	5-7	8

- b. Number of Exposed Personnel Points Assessed

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

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	IPC
14-16	A
10-13	B
5-9	C
<5	D

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

HEALTH HAZARD SEVERITY CODE	ILLNESS PROBABILITY CODE			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

From Table 2 of Department of Defense Instruction 6055.1, Department of Defense Occupational Safety and Health Program, 19 August 1998 (reference 1).

4. RAC DESCRIPTOR

RAC	DESCRIPTOR
1	CRITICAL
2	SERIOUS
3	MODERATE
4	MINOR
5	NEGLECTIBLE

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

APPENDIX B WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Sea Girt IFR 19 March 2008

Sample Number	Location	Results $\mu\text{g}/\text{ft}^2$ ^a	Std. $\mu\text{g}/\text{ft}^2$	Met Std.
1	IFR Floor in front of firing line	230	200	No
2	Folding Table at firing line	< 110	200	Yes
3	Pallet on left side of IFR	400	200	No
4	Top of box along left wall of IFR near Bullet Trap	< 110	200	Yes
5	IFR Bullet Trap	< 110	200	Yes
6	IFR Floor along right wall beneath pallets	3000	200	No
7	Top of IFR Lighting Baffles	1200	200	No
8	IFR Floor in front of Bullet Trap	3400	200	No
9	Back pallet on right wall in front of Bullet Trap	1200	200	No
10	Box under insulation along left wall near firing line	< 110	200	Yes

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

APPENDIX C
Photographs



Figure C-1. Wipe sample taken on IFR Floor in front of firing line

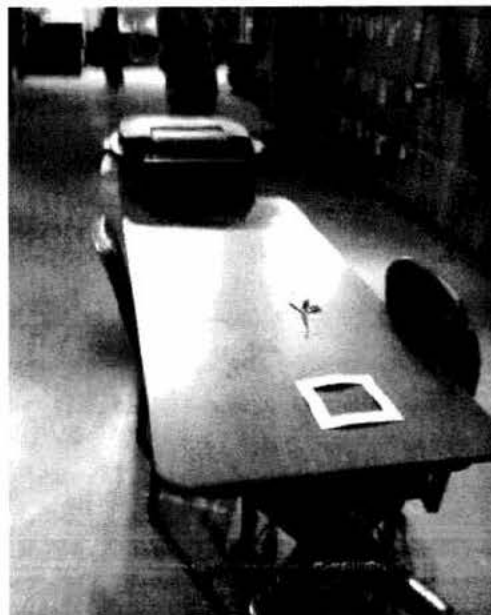


Figure C-2. Wipe sample taken on Folding Table at firing line

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

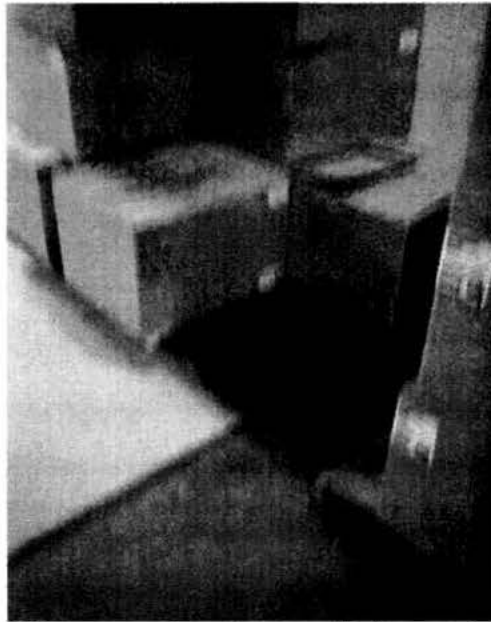


Figure C-3. Wipe sample taken on Pallet on left side of IFR

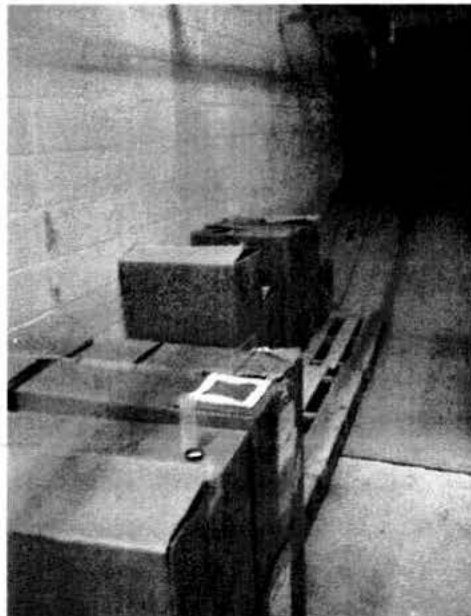


Figure C-4. Wipe sample taken on Top of box along left wall of IFR near Bullet Trap

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

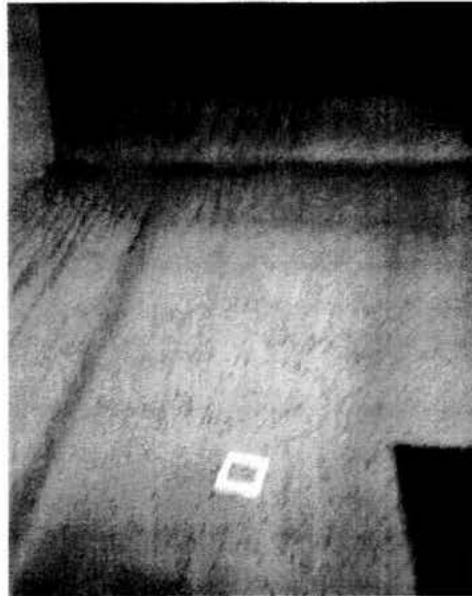


Figure C-5. Wipe sample taken on IFR Bullet Trap

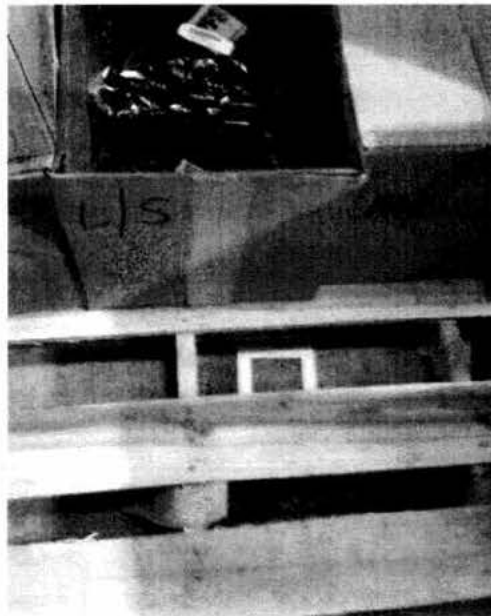


Figure C-6. Wipe sample taken on IFR Floor along right wall beneath pallets

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

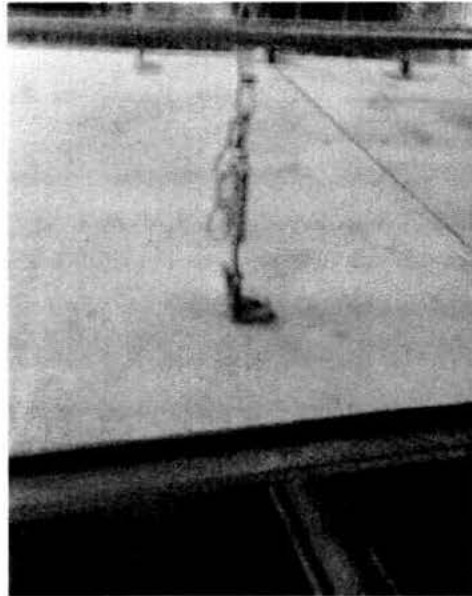


Figure C-7. Wipe sample taken on the Top of IFR Lighting Baffles



Figure C-8. Wipe sample taken on IFR Floor in front of Bullet Trap.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Sea Girt, New Jersey Army National Guard, 19 March 2008.

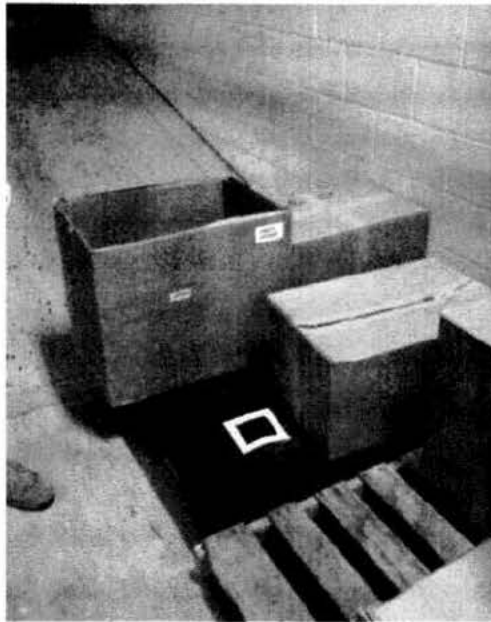


Figure C-9. Wipe sample taken on Back pallet on right wall in front of Bullet Trap

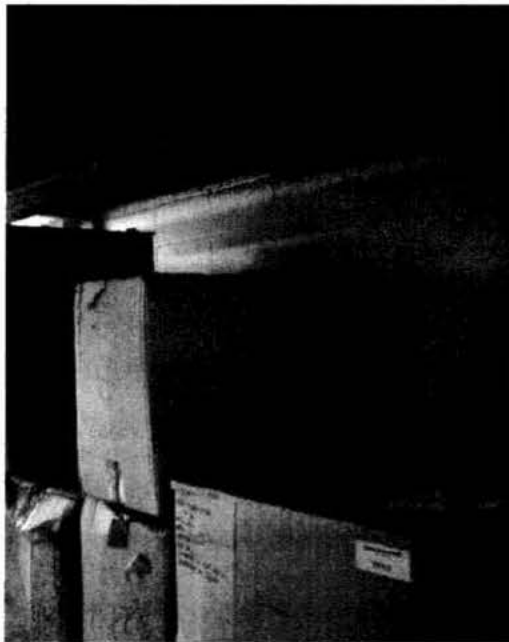
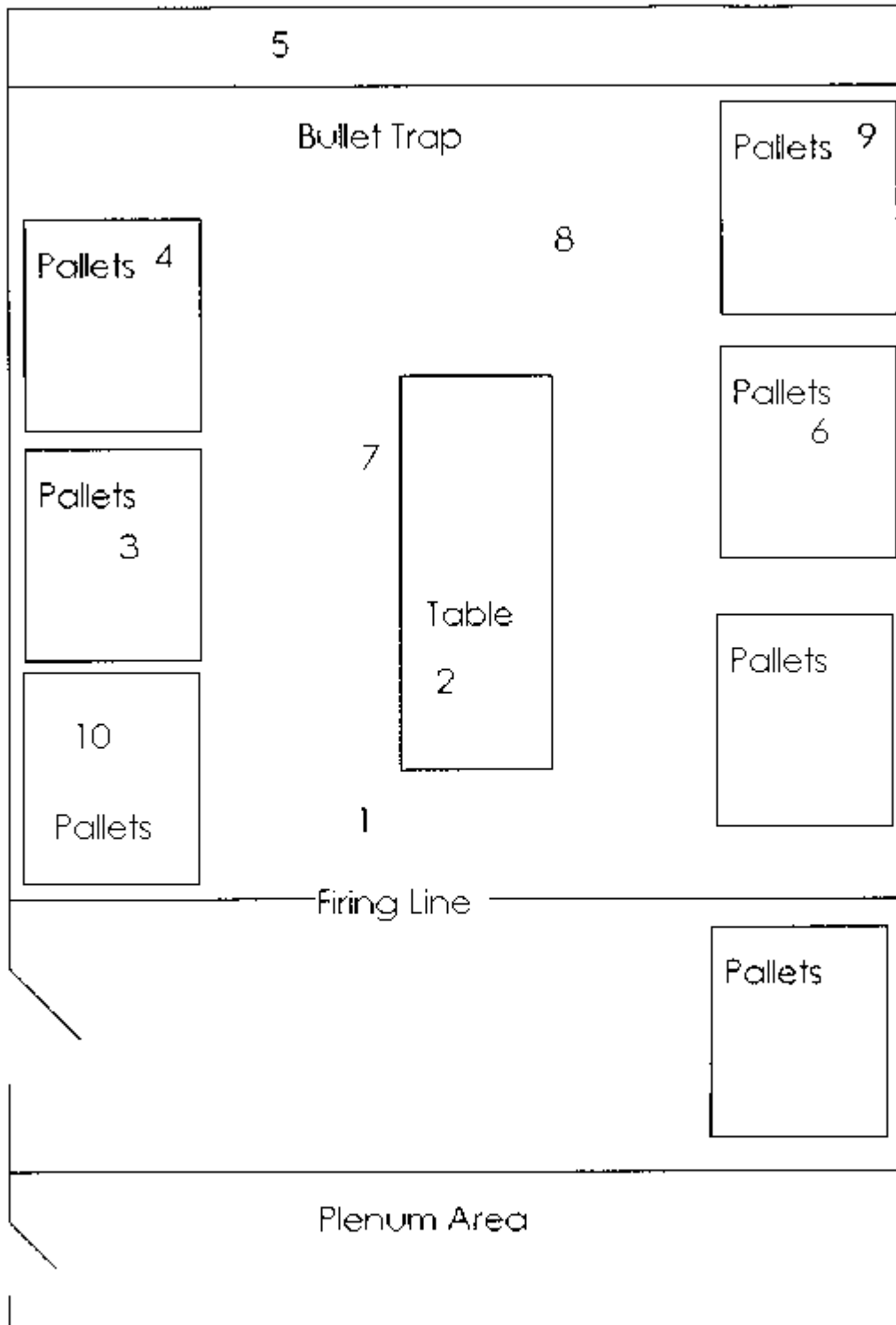


Figure C-10. Wipe sample taken on Box under insulation along left wall near firing line

C-5

Figure 1. Diagram of Wipe Samples for Sea Grit IFR 19 March 2008



**NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-ARS-IHNE
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078**

NGB-ARS-IHNE (40-5f)

16 April 2008

**EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
TOMS RIVER, NJ
19 MARCH 2008**

1. **PURPOSE.** The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Toms River IFR.

2. **CONCLUSIONS.** Potential lead hazard risks associated with the equipment stored in the inactive Toms River IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

3. **FINDINGS AND RECOMMENDATIONS.**

a. **Decontamination Requirements.** A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, four were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2. **(RAC 3)**

b. **Stored Materials.** Multiple items were stored in both the IFR and Plenum Area (Appendix C, Figures C-1 thru C-11). **(RAC 3)**

(1) **Cleaning Requirements.** Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). **(RAC 4)**

(2) **Porous Materials.** Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. **(RAC 4)**

INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
TOMS RIVER, NJ
19 March 2008

1. REFERENCES.

a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.

b. National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

2. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Toms River IFR.

3. GENERAL.

a. Survey Personnel. This survey was conducted 19 March 2008 by 1LT **Non-Responsive** and 1LT **Non-Responsive** both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.

b. Risk Assessment Codes (RACs). RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.

c. Background. CW2 Tilbert Brymer, NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Toms River IFR to assess any possible inhalation hazards as a result of lead dust contamination.

4. METHODOLOGY.

a. Assessment Criteria. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

b. Methodology. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

5. FINDINGS AND DISCUSSION.

a. Wipe Sampling.

(1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). While not legally applicable, this serves as a useful guideline (Reference 1b).

(2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, four were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard.

b. Stored Materials. Multiple items were stored in both the IFR itself and Plenum Area (Appendix C, Figures C-1 thru C-11). IAW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). Excluded from cleaning are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

6. RECOMMENDATIONS.

a. Decontamination Requirements. Clean and decontaminate the IFR IAW NG Pam 420-15, Section 3-2 (reference 1b). (RAC 3)

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b). (RAC 4)

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

(2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b).
(RAC 4)

7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Toms River IFR appeared to be moderately controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. **Non-Responsive**, Regional Industrial Hygienist, (410) 942-0273 ext 3.

Non-Responsive

1LT, MS
Environmental Engineer

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

APPENDIX A

DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, 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

AER <i>POSSIBLE?</i>	Exposure Conditions			
	< AL	Occasionally > AL Always < OEL	> AL < = OEL	> OEL
NO	0	3	5	7
YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, 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, non-severe illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer	7-8

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

- c. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.

- a. Duration of Exposure Points Assessed

Type of Exposure	Exposure Duration		
	1-8 hr/wk	> 8hr/wk, not continuous	Continuous
Irregular, intermittent	1-2	4-6	-
Regular, periodic	2-3	5-7	8

- b. Number of Exposed Personnel Points Assessed

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

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	IPC
14-16	A
10-13	B
5-9	C
< 5	D

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

HEALTH HAZARD SEVERITY CODE	ILLNESS PROBABILITY CODE			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

From Table 2 of Department of Defense Instruction 6055.1,
Department of Defense Occupational Safety and Health Program, 19 August 1998
(reference 1).

4. RAC DESCRIPTOR

RAC	DESCRIPTOR
1	CRITICAL
2	SERIOUS
3	MODERATE
4	MINOR
5	NEGLECTIBLE

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

APPENDIX B WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Toms River IFR 19 March 2008

Sample Number	Location	Results $\mu\text{g}/\text{ft}^2$^a	Std. $\mu\text{g}/\text{ft}^2$	Met Std.
1A	Top of Supply Air Ventilation Casing	5300	200	No
2A	Top of MRE Boxes	< 110	200	Yes
3A	Table Top near Bullet Trap	< 110	200	Yes
4A	Top of Ceiling panels	< 110	200	Yes
5A	IFR floor near Bullet Trap	220	200	No
6A	Top of video tape located along left side of IFR wall	< 110	200	Yes
7A	IFR Bullet Trap	2000	200	No
8A	Top of Air-conditioning Unit	130	200	Yes
9A	IFR floor near firing line	250	200	No
10A	Top of box in IFR Plenum	< 110	200	Yes

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

APPENDIX C
Photographs

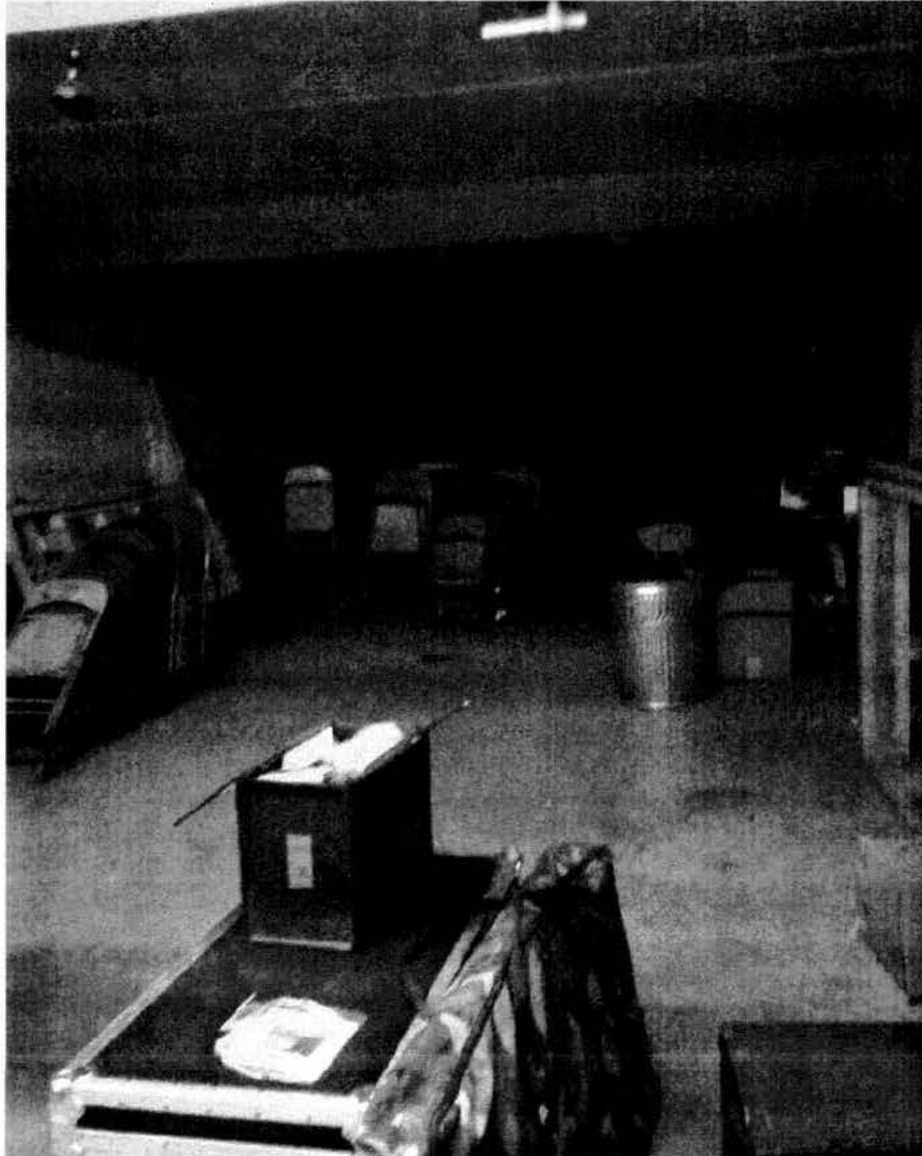


Figure C-1. Toms River IFR being used as a storage area.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

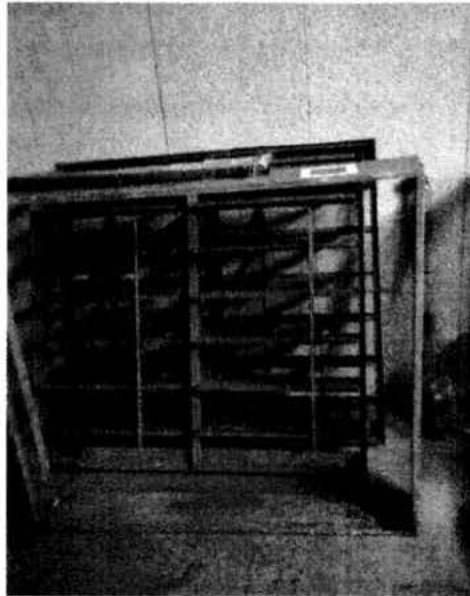


Figure C-2. Wipe sample taken on top of Supply Air Ventilation Casing



Figure C-3. Wipe sample taken on top of MRE Boxes

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.



Figure C-4. Wipe sample taken on table top near Bullet Trap



Figure C-5. Wipe sample taken on top of Ceiling panels

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.



Figure C-6. Wipe sample taken on IFR floor near Bullet Trap

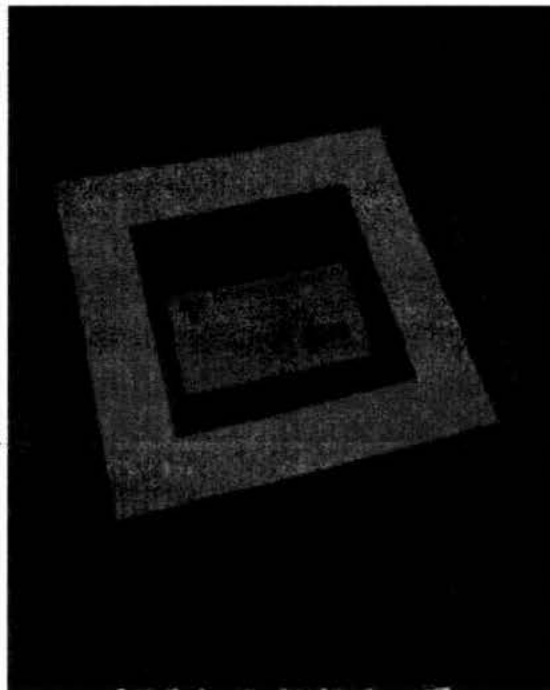


Figure C-7. Wipe sample taken on top of video tape located along left side of IFR wall

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SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

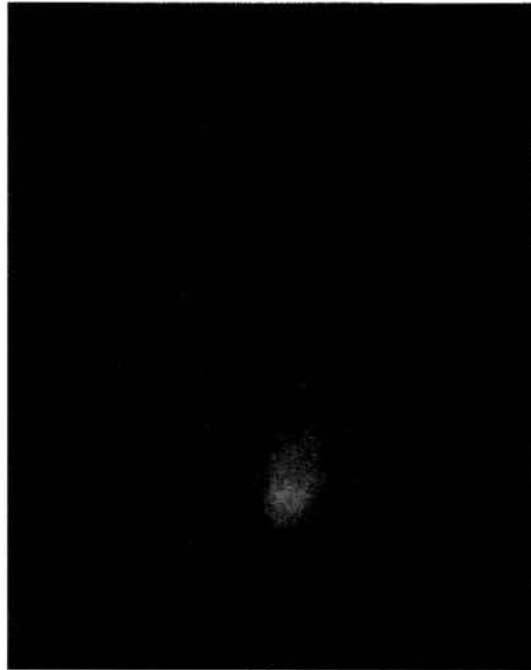


Figure C-8. Wipe sample taken on IFR Bullet Trap



Figure C-9. Wipe sample taken on top of Air-conditioning Unit.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Toms River, New Jersey Army National Guard, 19 March 2008.

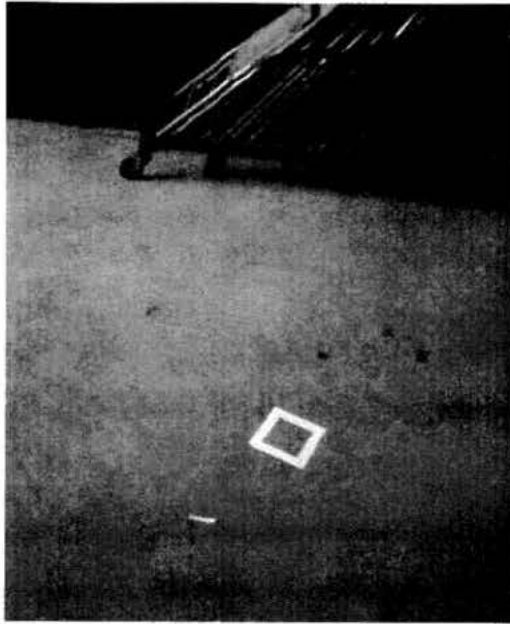
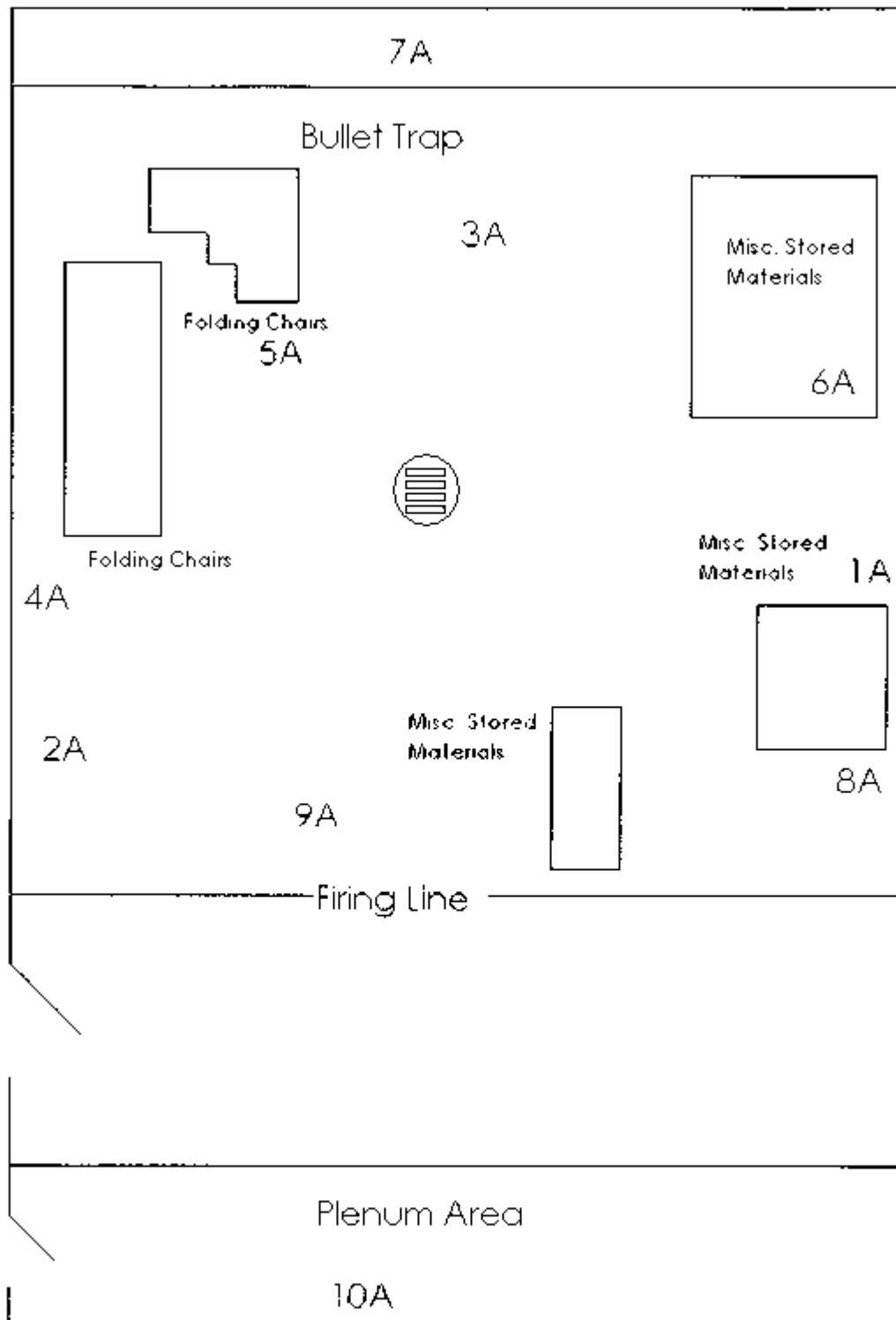


Figure C-10. Wipe sample taken on IFR floor near firing line



Figure C-11. Wipe sample taken on top of "Diversified Ceramics" box in IFR Plenum

Figure 1. Diagram of Wipe Samples for Toms River IFR 19 March 2008



NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-AVS-SI
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078

NGB-AVS-SI

10 April 2001

MEMORANDUM FOR The NJARNG, Safety and Occupational Health Office
ATTN: SAAO-SM, Trenton-Mercer Airport, 152 Scotch
Road, West Trenton, NJ 08628

SUBJECT: Evaluation of Indoor Firing Range

1. References. See Appendix A.

2. General.

a. Ms. **Non-Responsive** NGB, Army National Guard, Regional Industrial Hygienist performed an Indoor Rifle Range evaluation at Sea Girt, NJ. Mr. **Non-Responsive** CIH and Mr. **Non-Responsive** IHIT, Industrial Hygienists from the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) assisted in the evaluation. The survey was conducted 21 February 2001.

b. Exposure and ventilation standards used in this report are the most stringent of those found in Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) or NGB, All States Letter Log Number (P00-0059); Subject: ARNG – Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges.

c. Risk Assessment Codes (RACs) are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. RACs are determined by using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix B of this report.

3. Background.

a. This range has been completely renovated from an existing 50 feet indoor firing range. The new range is a 4 lane, 25 meter indoor rifle range with a

NGB-AVS-SI

Subject: Evaluation of Indoor Firing Range

lubricated Snail™ bullet trap. A computer automated control room has been installed behind the plenum section. An individual operating in this room monitors firers and can retrieve targets.

4. Findings and Discussion.

a. Range Classification. This range is classified as "**SAFE**" based upon ventilation and air sampling results.

b. Ventilation.

(1) The cross-sectional area of the range was measured to be 155 square feet (ft²). Air is introduced into a 1.5 ft wide by 7.75 ft high plenum wall. Air is exhausted downrange behind the bullet trap. "Smoke testing" of the range revealed laminar flow of air.

(2) Blueprint readings on the supply and exhaust fans were 12,000 CFM and 13,280 CFM, respectfully. These fan speeds allow for the range to be under negative pressure, as required.

(3) The average velocity at the firing line was measured to be 78 feet per minute (FPM) which exceeds the minimum average of 50 FPM as required by the NGB All States Letter.

(4) The static pressure of the range was measured to be -0.6 inches water gage (w.g.) pressure from the range vestibule area. The recommended static pressure is between -0.05 and -0.15 inches w.g.

(5) The amperage was measured on the three phase exhaust and supply fans. The amperage for the supply fan was approximately 34 which was consistent with design criteria. The exhaust fan was measured at approximately 22 amps, this is about 10 percent below design specifications. Speeding up the exhaust fan will help decrease the static pressure in the range.

(6) The plenum wall was constructed of Lexan™ panels with 3/8 inch diameter holes. The average airflow through the plenum wall was measured to be 2530 FPM and was uniform and laminar.

c. Air Sampling Results. Air samples were collected and analyzed for airborne concentrations of inorganic lead fume and dust. Air sample results can be found in Appendix C. Personal breathing zone (BZ) air samples were collected on all four firers. General area (GA) air samples were collected 8 ft. 9

NGB-AVS-SI

Subject: Evaluation of Indoor Firing Range

inches behind the firing line on the plenum wall behind lanes 2 and 3. Air sample results are reported as a time weighted average (TWA) for an 8 hour exposure and have been compared to the OSHA PEL-TWA standard of 0.05 milligrams per cubic centimeter (mg/m^3), the inorganic lead action level of 0.03 mg/m^3 and the exposure limits listed in All States Memorandum (Log Number P00-0059) Figure 1-1. Air sample results did not exceed either the OSHA standard or the standard listed in the All States Letter. Personnel fired approximately 820 rounds of 5.56 millimeter ammunition from M16A2 rifles. The sampling period was 77 minutes. Sample results can be found in Appendix C.

d. Other Areas of Concern.

(1) Acoustical tile was installed on the ceiling in front of the firing line. This material will not help to eliminate any noise and may harbor dangerous lead dust and other contaminants in the future.

(2) Door sweeps and insulation around the door was installed prior to firing.

(3) A SOP needs to be developed and distributed or made available to all users and maintenance personnel.

(4) Light could be seen at the top of the bullet trap around the 3rd and 4th firing lanes. The bullet trap needs to be flush with the ceiling.

(5) An adjustable door stop needs to be installed in the door leading to the range. This will help to eliminate the door closing too quickly because of the high static pressure in the range.

(6) Additional signs have to be installed prior to opening the range for continuous use. Signs such as high noise hazard and no dry sweeping of the range should be installed.

(7) The range should be limited to 9 mm ammunition. If individuals are unsure of the caliber of ammunition that can be fired on the range, this office or the NJARNG Safety and Occupational Health Office can be contacted for assistance on the selection of correct ammunition.

NGB-AVS-SI

Subject: Evaluation of Indoor Firing Range

5. Recommendations.

- a. Remove the ceiling acoustical tile in front of the firing line. (RAC 4)
- b. Develop a SOP and staff the document through the NJARNG Safety Office and enforce the procedures prescribed within. (RAC 3) [AR 385-63]
- c. Ensure the backstop is flush with the ceiling. (RAC 2)
- d. Install an adjustable doorstop on the door leading into the range. (RAC 3)
- e. Ensure all warning signs are posted as required. (RAC 3)
- e. Adjust the speed of the exhaust fan so that the amperage is closer to design specifications. (RAC 3)

6. Request a reply by endorsement on the corrective action taken on the aforementioned deficiencies by 10 July 2001.

7. The point of contact is the undersigned and can be reached at (410) 942-0273, ext. 12.

Non-Responsive

Regional Industrial Hygienist

APPENDIX A REFERENCES

1. Department of Defense Instruction (DODI) 6055.1, Department of Defense Occupational Safety and Health (OSH) Program, October 1998.
2. AR 40-5, Preventive Medicine, 15 October 1990.
3. TB MED 503, Occupational and Environmental Health, The Army Industrial Hygiene Program, February 1985.
4. NG PAM 385-14, Safety Evaluation of Indoor Firing Ranges, (DRAFT).
5. NGB, All States Letter Log Number (P00-0059); Subject: ARNG – Policy and Responsibilities for Inspection, Evaluation and Operation of ARNG Indoor Firing Ranges. 7. NGB Design Guide (DG) 415-1, Design Guide for Armories, Current.
6. Title 29 Code of Federal Regulations, 2001, Revision, Part 1910, Occupational Safety and Health Standards.
7. American Conference of Governmental Industrial Hygienists, Threshold Limit Values (TLVs) for Chemical Substances and Biological Exposure Indices for 2000-2001.

APPENDIX B
DERIVING RISK ASSESSMENT CODES (RACs)
FOR HEALTH HAZARDS
(Ref: DOD Instruction 6055.1)

STEP 1. Using the following procedures to assess points, determine the health hazard severity category (HHSC). The HHSC reflects the magnitude of exposure to a physical, chemical, or biological agent and the medical effects of exposure.

A. Exposure Points Assessed

		Exposure Conditions			
		<CT	Occasionally - >CT Always - <STD	>CT ≤STD	>STD
AER	NO	0	3	5	7
POSSIBLE?	YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion

CT = DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, 1 parts per million

STD = DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit

B. Medical Effects Points Assessed

<u>Condition</u>	<u>Points</u>
No medical effect, 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 and lung cancer	7-8

C. Determine the HHSC by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>HHSC</u>
13-16	I
9-12	II
5-8	III
0-4	IV

STEP 2. Using the following guides to assess points, 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

		<u>Length of Exposure</u>	
		1-8 hr/wk not continuous	>8 hr/wk continuous
Type of Exposure	Irregular, intermittent	1-2	4-6
	Regular, periodic	2-3	5-7
			-
			8

B. Number of Exposed Personnel Points Assessed

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

B-2

- c. Determine the MPC for health hazards by totaling the points assessed and using the following guide:

<u>Total Points (sum of A and B, above)</u>	<u>MPC</u>
14-16	A
10-13	B
5-9	C
<5	D

STEP 3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

MISHAP PROBABILITY

	A	B	C	D
HAZARD SEVERITY	I 1 1 2 3	II 1 2 3 4	III 2 3 4 5	IV 3 4 5 5

APPENDIX C

AIR SAMPLE RESULTS AND ANALYSIS

Results of Lead Air Sampling During Firing 21 February 2001
Sea Girt, NJ Armory

Firer/Location	Type	Sample Number	Time (Mins)	Lead ug/sample	Lead mg/m ³	Lead TWA ₈ mg/m ³
Lane 1	BZ	1	77	ND	<0.008	<0.0013
Lane 2	BZ	2	77	ND	<0.007	<0.0011
Lane 3	BZ	3	77	ND	<0.008	<0.0013
Lane 4	BZ	4	77	ND	<0.008	<0.0013
Plenum Lane 3	GA	5	77	ND	<0.008	<0.0013
Plenum Lane 2	GA	6	77	ND	<0.008	<0.0013
Outside Door	GA	7	77	ND	<0.008	<0.0013
Reloader	BZ	8	77	ND	<0.008	<0.0013
Blank	N/A	9	N/A	ND	N/A	N/A

The OSHA PEL-TWA₈ for lead is 0.05 mg/m³

ND indicates the value is below the reporting limit

**NATIONAL GUARD BUREAU
ARMY NATIONAL GUARD
REGION NORTH INDUSTRIAL HYGIENE OFFICE
ATTN: NGB-ARS-IHNE
301-IH OLD BAY LANE
HAVRE DE GRACE, MD 21078**

NGB-ARS-IHNE (40-5f)

16 April 2008

**EXECUTIVE SUMMARY
INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
WOODBURY, NJ
20 MARCH 2008**

1. **PURPOSE.** The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Woodbury IFR.

2. **CONCLUSIONS.** Potential lead hazard risks associated with the equipment stored in the inactive Woodbury IFR appeared to be poorly controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

3. FINDINGS AND RECOMMENDATIONS.

a. Decontamination Requirements. A total of 10 wipe samples were collected near and inside the IFR. Of the 10 wipe samples collected, eight were over the recommended $200 \mu\text{g}/\text{ft}^2$ standard. Clean and decontaminate the IFR in accordance with (IAW) National Guard Pamphlet (NG Pam) 420-15, Section 3-2. **(RAC 3)**

b. Stored Materials. Multiple items were stored in both the IFR and Plenum Area (Appendix C, Figures C-1 thru C-11). **(RAC 3)**

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). **(RAC 4)**

(2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements. **(RAC 4)**

INDUSTRIAL HYGIENE EVALUATION
INDOOR FIRING RANGE (IFR)
WOODBURY, NJ
20 MARCH 2008

1. REFERENCES.

a. Department of Defense Instruction (DODI) 6055.1, Department of Defense (DOD) Safety and Occupational Health (SOH) Program, 19 August 1998.

b. National Guard Pamphlet (NG Pam) 420-15, Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 November 2006.

2. PURPOSE. The purpose of the survey was to evaluate occupational health and safety hazards associated with lead dust contamination of equipment stored at the inactive Woodbury IFR.

3. GENERAL.

a. Survey Personnel. This survey was conducted 20 March 2008 by 1LT **Non-Responsive** and 1LT **Non-Responsive** both Environmental Engineers from the United States Army Center for Health Promotion and Preventive Medicine-North (USACHPPM-North), Fort George G. Meade, Maryland.

b. Risk Assessment Codes (RACs). RACs are assigned to recommendations to help quantify risks to personnel and to aid in the establishment of funding priorities for corrective actions. Health RACs are determined using the RAC table from the Department of Defense Instruction (DODI) 6055.1. This table is provided in Appendix A of this report.

c. Background. CW2 **Non-Responsive** NJARNG State Occupational Health Manager (SOHM) G-3, requested an evaluation, through the National Guard Bureau (NGB) Region North Industrial Hygiene (IH) Office, of the equipment stored at the inactive Woodbury IFR to assess any possible inhalation hazards as a result of lead dust contamination.

4. METHODOLOGY.

a. Assessment Criteria. The United States Army, through the Department of Defense Instruction 6055.1, Section E3.4.1.2, directs that facilities provide healthful work environments in accordance with the most stringent standards applicable (reference 1a).

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

b. Methodology. The survey consisted of a visual inspection and a collection of wipe samples. All measurements were collected in accordance with applicable standards.

5. FINDINGS AND DISCUSSION.

a. Wipe Sampling.

(1) General. In a compliance instruction letter for lead in the construction industry, OSHA has provided a level of acceptable lead loading on surfaces for non-lead work areas of 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). While not legally applicable, this serves as a useful guideline (Reference 1b).

(2) Wipe Sample Results. A total of 10 wipe samples were collected near and inside the IFR. Table B-1, located in an Appendix B, shows the location of each wipe sample and the corresponding results. Any values found to be below the detectable limit were assumed to be absent of lead contamination. Of the 10 wipe samples taken, eight were over the recommended 200 $\mu\text{g}/\text{ft}^2$ standard.

b. Stored Materials. Multiple items were stored in both the IFR itself and the Plenum behind it (Appendix C, Figures C-1 thru C-11). IAW NGR 420-15, Section 3-3 (c), every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful (reference 1b). It is recommended that items be cleaned with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h). Excluded from cleaning are, any types of porous items, such as office partitions and carpet that were present during firing. These items should be considered grossly contaminated and be discarded as hazardous waste IAW the local, state, and federal requirements.

6. RECOMMENDATIONS.

a. Decontamination Requirements. Clean and decontaminate the IFR IAW NG Pam 420-15, Section 3-2 (reference 1b). (RAC 3)

b. Stored Materials.

(1) Cleaning Requirements. Clean all non-porous stored items with either a high efficiency particulate air (HEPA) filter vacuum or using the wet wipe method presented in NGR 420-15, Section 3-2 (h) (reference 1b). (RAC 4)

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

(2) Porous Materials. Remove all porous materials and discard them as hazardous waste IAW the local, state, and federal requirements (reference 1b).
(RAC 4)

7. CONCLUSIONS. Potential lead hazard risks associated with the equipment stored in the inactive Woodbury IFR appeared to be poorly controlled. Implementation of the recommendations in this report will contribute to the healthfulness of the work environment of this facility.

8. ADDITIONAL ASSISTANCE. Point of contact for this action and other industrial hygiene related topics is Ms. **Non-Responsive** Regional Industrial Hygienist, (410) 942-0273 ext 3.

Non-Responsive

1LT, MS
Environmental Engineer

APPROVED BY:

Non-Responsive

NGB Regional Industrial Hygienist

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

APPENDIX A

DERIVING RISK ASSESSMENT CODES (RACs) FOR HEALTH HAZARDS

1. HEALTH HAZARD SEVERITY CODE (HHSC). Using the following procedures to assess points, 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

AER POSSIBLE?	Exposure Conditions			
	< AL	Occasionally > AL Always < OEL	> AL < = OEL	> OEL
NO	0	3	5	7
YES	1-2	4	6	8

AER = Alternate exposure route, such as skin absorption, ingestion.

AL = Action level, DoD component threshold that triggers surveillance actions, such as microWatts/cm², dB, parts per million.

OEL = Occupational Exposure Limit, DoD exposure limit, such as Threshold Limit Value and Permissible Exposure Limit.

b. Medical Effects Points Assessed.

Condition	Points
No medical effect, 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, non-severe illness or loss of capacity, such as permanent hearing loss	5-6
Permanent, severe, disabling irreversible illness or death, such as asbestosis and lung cancer	7-8

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SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

- c. Determine the HHSC by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	HHSC
13-16	I
9-12	II
5-8	III
0-4	IV

2. ILLNESS PROBABILITY CODE (IPC). Using the following guides to assess points, determine the IPC for health hazards. The IPC is a function of the duration of exposure and the number of exposed personnel.

- a. Duration of Exposure Points Assessed

Type of Exposure	Exposure Duration		
	1-8 hr/wk	> 8hr/wk, not continuous	Continuous
Irregular, intermittent	1-2	4-6	-
Regular, periodic	2-3	5-7	8

- b. Number of Exposed Personnel Points Assessed

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

NG8-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

c. Determine the IPC for health hazards by totaling the points assessed and using the following guide:

Total Points (sum of A and B, above)	<i>IPC</i>
14-16	A
10-13	B
5-9	C
<5	D

3. Determine the RAC for health hazards by using the following matrix to measure health hazard severity and mishap probability factors.

HEALTH HAZARD SEVERITY CODE	<i>ILLNESS PROBABILITY CODE</i>			
	A	B	C	D
I	1	1	2	3
II	1	2	3	4
III	2	3	4	5
IV	3	4	5	5

From Table 2 of Department of Defense Instruction 6055.1,
Department of Defense Occupational Safety and Health Program, 19 August 1998
(reference 1).

4. RAC DESCRIPTOR

RAC	DESCRIPTOR
1	CRITICAL
2	SERIOUS
3	MODERATE
4	MINOR
5	NEGLECTIBLE

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

APPENDIX B
WIPE SAMPLE RESULTS

Table B-1. Lead Wipe Sample Results for Woodbury IFR 20 March 2008

Sample Number	Location	Results $\mu\text{g}/\text{ft}^2$ ^a	Std. $\mu\text{g}/\text{ft}^2$	Met Std.
1E	IFR Floor in front of Bullet Trap	1200	200	No
2E	Top of bookshelf near IFR Bullet Trap	< 110	200	Yes
3E	IFR Floor near drain	1800	200	No
4E	Top of black filing cabinet along right wall of IFR	< 110	200	Yes
5E	IFR Floor along left wall	6600	200	No
6E	IFR Floor along right wall	2600	200	No
7E	Folding Table at firing line	630	200	No
8E	Floor in front of entrance door to IFR	230	200	No
9E	IFR Plenum on Floor	390	200	No
10E	IFR Floor behind firing line	1200	200	No

a: Results are in micrograms per square foot.

< indicates the value is below the detectable limit

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SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

APPENDIX C
Photographs



Figure C-1. Woodbury IFR being used as a storage area.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.



Figure C-2. Wipe sample taken on IFR Floor in front of Bullet Trap



Figure C-3. Wipe sample taken on top of bookshelf near IFR Bullet Trap

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.



Figure C-4. Wipe sample taken on IFR Floor near drain



Figure C-5. Wipe sample taken on Top of black filing cabinet along right wall of IFR

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

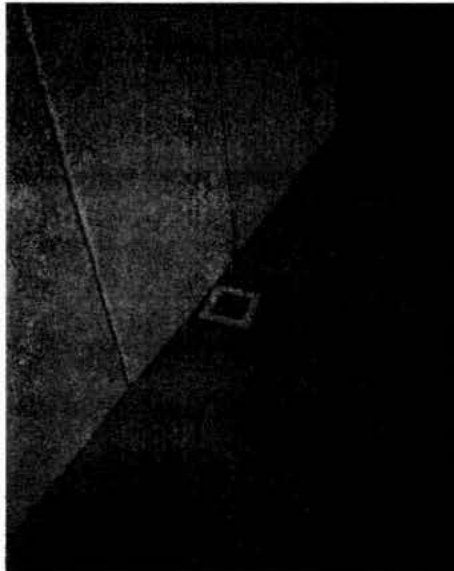


Figure C-6. Wipe sample taken on IFR Floor along left wall

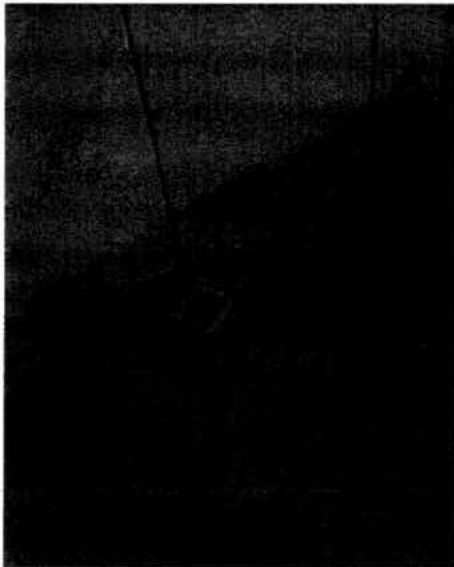


Figure C-7. Wipe sample taken on IFR Floor along right wall

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

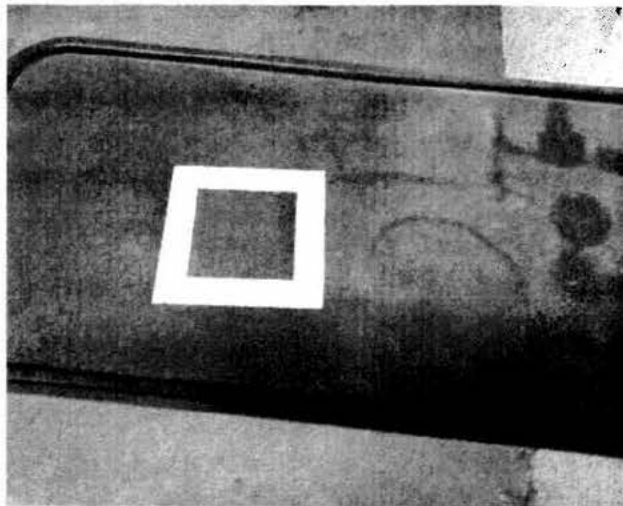


Figure C-8. Wipe sample taken on the folding table at the firing line

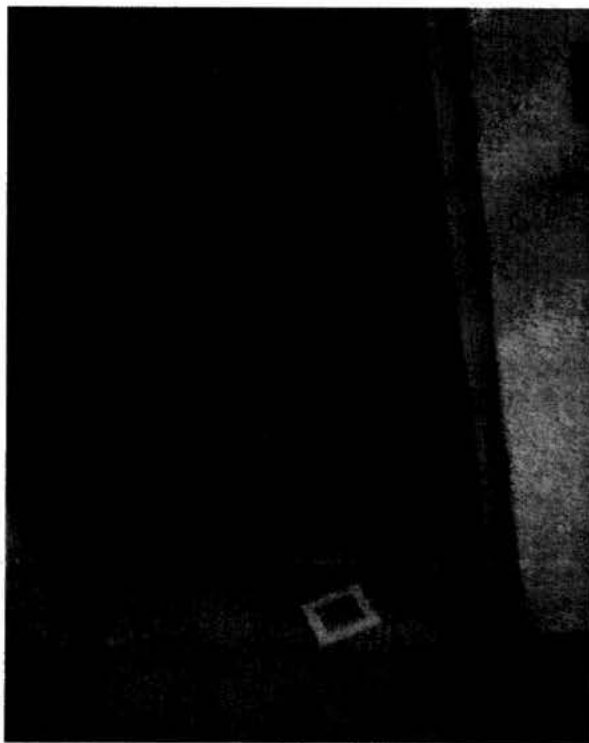


Figure C-9. Wipe sample taken on floor in front of entrance door to IFR.

NGB-ARS-IHNE

SUBJECT: Industrial Hygiene Survey of the Indoor Firing Range Woodbury, New Jersey Army National Guard, 20 March 2008.

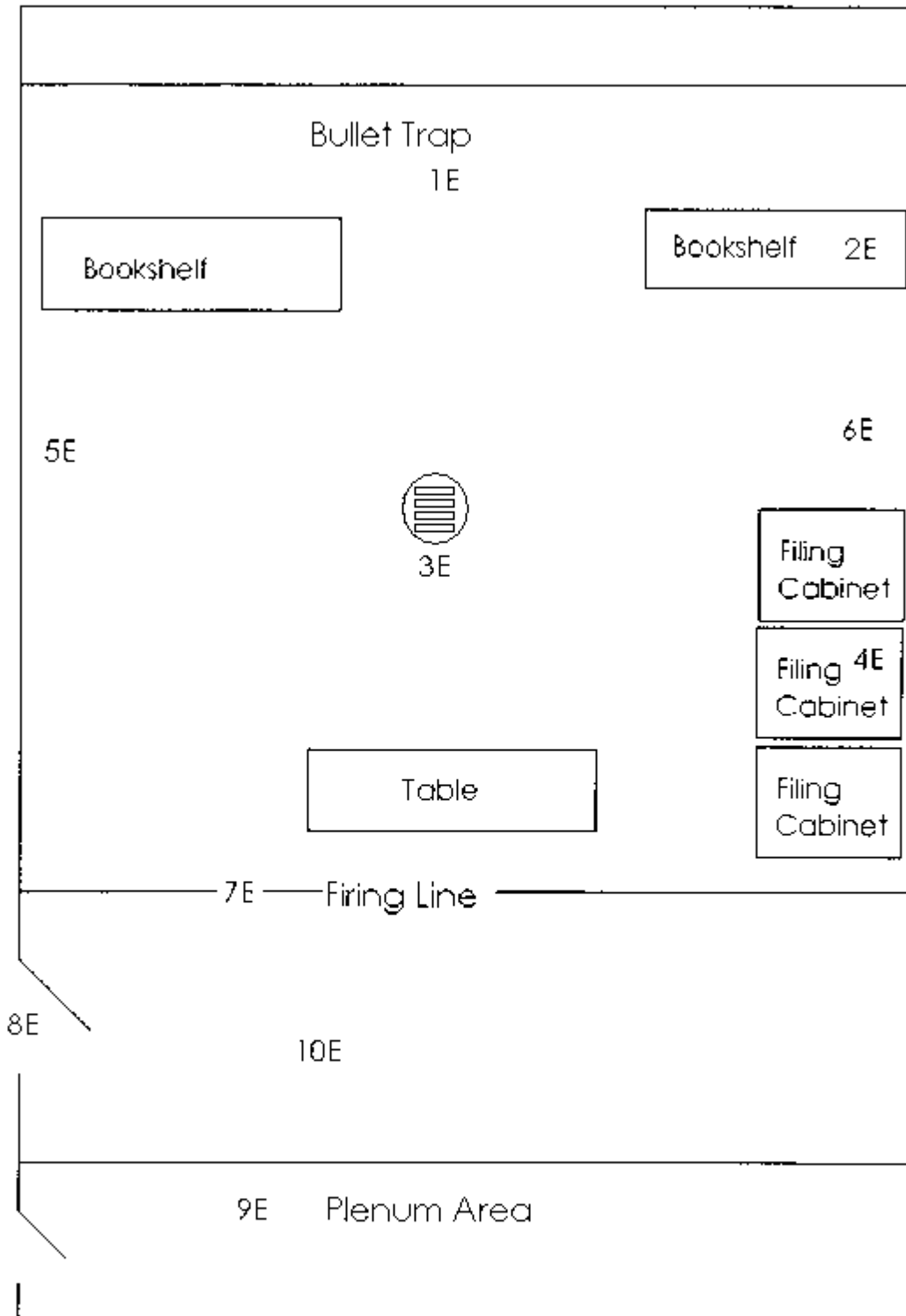


Figure C-10. Wipe sample taken on IFR Plenum on Floor



Figure C-11. Wipe sample taken on IFR Floor behind firing line

Figure 1. Diagram of Wipe Samples for Woodbury IFR 19 March 2008



Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Jersey 03079

**FINAL
INDUSTRIAL HYGIENE SURVEY REPORT
SEAGIRT ARMORY BUILDING 64, MEDICAL FACILITY
SEAGIRT, NEW JERSEY**

September 2006
PN: 39741509

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY.....	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	3
2.2.3 Carbon Monoxide.....	3
2.2.4 Lighting.....	4
2.3 VENTILATION SYSTEM EVALUATION.....	5
2.4 NOISE MEASUREMENTS.....	5
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	5
2.6 INTERPRETATION OF RESULTS.....	5
3.0 FORMER INDOOR FIRING RANGE.....	7
4.0 DRILL HALL.....	8
5.0 BOILER ROOM.....	9
5.1 OPERATION DESCRIPTION.....	9
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
5.3 VENTILATION SYSTEM EVALUATION.....	9
5.4 NOISE MEASUREMENTS.....	9
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	9
5.6 INTERPRETATION OF RESULTS.....	9
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	10
6.1 CONFINED SPACES.....	10
6.2 HEARING CONSERVATION.....	10
6.3 RESPIRATORY PROTECTION.....	10
6.4 HAZARD COMMUNICATION.....	10
6.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
7.0 REFERENCES.....	11

APPENDICES

- Appendix A Facility Drawing
- Appendix B Personnel List
- Appendix C Hazardous Materials List
- Appendix D Analytical Results
- Appendix E Training Certificates
- Appendix F Photographs

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting		
On the day of the survey, the illumination in the drill floor, showers, break room, firing range, supply room, office #1 and copier room was inadequate in most circumstances.	Increase lighting in the administrative and drill floor areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Asbestos		
A site-specific asbestos operations and maintenance plan was not available. No warning labels in janitorial or maintenance areas.	Maintain a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3
Electrical		
The electrical panel located in the x-ray process area was obstructed.	Clear objects and debris from front of electrical panel and maintain unobstructed (OSHA 1910.303(g)(1)(i))	RAC 5
Mold		
Water damaged was observed throughout. Mold growth could become an issue if left unattended.	Determine and repair source of water. Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Seagirt Medical Facility (Building 64), located in Seagirt, New Jersey. This report includes an executive summary and a description of the site activities and findings and a list of conclusions and recommendations.

On March 16, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Medical Facility in Seagirt, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. No samples of suspect asbestos-containing materials were collected since no damaged materials were observed. SSG **Non-Responsive** of the New Jersey ARNG was Mr. **Non-Responsive** site contact for this survey.

This facility is a one-story stucco building, with an attic. Interior finishes include wood, floor tile, wallboard and suspended ceiling tiles. This facility is built on a concrete slab, with a pitched asphalt roof. The building was constructed in the 1960's. A facility layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Some computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards in offices could not be adjusted. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person. No complaints were received by URS concerning workstations at the time of this survey. This building also serves as a medical examination and dental clinic.

Chemicals on site include medications and medical solutions in lockers with hazard communication data available in Lt. Col. Burrs Office.

Roof leaks were observed in the cold storage room hall during this survey. Complaints were made by building occupants regarding inadequate heat in the office areas during the winter months.

2.2 Chemical and Physical Agents Sampled

On the day of the survey, relative humidity, carbon dioxide and carbon monoxide measurements were made in the foyer, dental room, hall outside office 1 and outside. These readings were all made using a TSI Q-TrakTM (Model 8551).

2.2.1 Relative Humidity

Relative humidity on the day of the survey ranged from 34.9-40.2 % throughout the various building areas with an average of 37.3%. The average reading was below the recommended maximum level of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

Carbon dioxide concentrations ranged from 410 to 552 parts per million (ppm), with an average of 478 ppm. The outside reading was 356 ppm.

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 356 ppm on the day of the survey, the ASHRAE limit would be 1,056 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide concentrations ranged from 0 to 1.5 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments (62.1-2004). Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments may include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

2.2.4 Lighting

Lighting in the administrative areas was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP –1-04).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting Footcandles	Recommended Lighting Footcandles
Foyer	Foyer	34	30
Records	Storage	32	30
Office 1	Office	34	50
Office 2	Office	30	30
Treatment	Examination	31	50
Lab	Laboratory	19	50
EKG	Laboratory	29	50
Exam 3	Examination	65	50
Exam 2	Examination	28	50
Exam 1	Examination	34	50
Vision	Examination	14	50
Hearing	Examination	15	50
Medical Review	Office	27	50
Lounge	Lounge	50	30
Computer Room	Computer Room	26	30
X-Ray	Examination	45	50
Dental	Examination	34	50

2.2.5 Lead

Wipe testing for lead was conducted in the medical facility using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 2-2 below shows the results of the lead sampling.

Table 2-2
Levels of Lead Dust Found in the Medical Facility

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Exam #1 – Floor	0316B-01	0.111	11	200
Record Review – Floor	0316B-02	0.111	17	200
Hall – Outside Computer Room – Floor	0316B-03	0.111	16	200
X-Ray Cabinet – Top of Storage Cabinet	0316B-04	0.111	37	200
Office #2 – Center of Floor	0316B-05	0.111	14	200
Blank	0316B-06	N/A	8.1*	N/A

*Note lab reported blank wipe in µg/ft²

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible. Electrical boxes were obstructed in the X-ray process area (29 CFR 1910.303 (g)(1)(i)).

ERGONOMICS: The ergonomic issues were minor with regard to the desks, chairs and monitors need to be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey the illumination in the administrative area was inadequate in most offices and generally throughout the facility. URS recommends increasing the area lighting or supplement task lighting for each workstation in the

administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

MOLD: Water leaks were evident within the building. The source of the water should be determined and the building envelope repaired to prevent further damage. Water-damaged building materials should be removed.

TEMPATURE: Concerns about temperature within the building have been raised. Since temperature is subjective to individuals and is dependent on many factors including air movement and relative humidity it is difficult to assess. In the past ASHRAE recommended a thermal comfort range of 68 to 74 degrees Fahrenheit for winter months with individuals performing light sedentary activities and wearing seasonal clothing. Temperature should be re-assessed during the winter months.

3.0 FORMER INDOOR FIRING RANGE

There is no former indoor firing range at this facility.

4.0 DRILL HALL

There is no drill hall at this facility.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of wooden walls with a concrete floor, containing a furnace and associated piping. Mold growth was observed on drywall in the boiler room.

5.2 Chemical and Physical Agents Sampled

No physical or chemical agents were sampled in the boiler room.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

MOLD: Mold was observed on drywall in the boiler room. According to the EPA mold visible mold should be removed to prevent possible health problems.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A program was found regarding hazard communication. Training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A
FACILITY DRAWING

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Apartment

AREA - 4,031 SQUARE FEET

STARC MEDICAL DETACHMENT BUILDING 64

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FOIA Requested Record #J-15-0085 (NH)
Released by National Guard Bureau
Page 138 of 1660

Ambulance

Parking

EXIT

EXIT

Office
Medical Review

Lounge

Computer

X-Ray Room

Processor

Dental

Women

Men

Office #1

Office #2

Office

Heating

Vision

Exam #1

Exam #2

Exam #3

EKG

Laboratory

Treatment

Records

Darkroom

Office

Heating

Vision

Exam #1

Exam #2

Exam #3

EKG

Laboratory

Treatment

Records

Darkroom

Office

Heating

Vision

Exam #1

Exam #2

Exam #3

EKG

Laboratory

Treatment

Records

Darkroom

Office

Heating

Vision

Exam #1

Exam #2

Exam #3

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EKG

Laboratory

Treatment

Records

Darkroom

Office

Heating

Vision

Exam #1

Exam #2

Exam #3

EKG

Laboratory

Treatment

Records

Darkroom

Office

Heating

Vision

Exam #

APPENDIX B
PERSONNEL LIST

**PERSONEL LIST
SEA GIRT MEDICAL FACILITY**

Name	Rank
Non-Responsive	SSG
	SSG
	LTC

APPENDIX C
HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation
Fayette de Grace, Maryland 21078
Chain Of Custody: 128458
Date Analyzed: 5/28/2004
Person Submitting: [REDACTED]
Report Date: 17-Jun-04

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0448653	0316B-01	furnace	Wipe	6000	0.111	2.70 ug/R ²	11 ug/R ²	
0448654	0316B-02	furnace	Wipe	6000	0.111	13.50 ug/R ²	17 ug/R ²	
0448655	0316B-03	furnace	Wipe	6000	0.111	13.50 ug/R ²	16 ug/R ²	
0448656	0316B-04	furnace	Wipe	6000	0.111	13.50 ug/R ²	37 ug/R ²	
0448657	0316B-05	furnace	Wipe	6000	0.111	2.70 ug/R ²	14 ug/R ²	
0448658	0316B-06	furnace	Wipe	6000	0.111	2.70 ug/R ²	8.1 ug/R ²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst:

Technical Manager:

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, the report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these Laboratories. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



Certificate of Training

Non-Responsive

For successful completion of an 8 Hour, 1 Day
**Asbestos Inspector & Management Planner
 Annual Refresher Training**

MARCH 25, 2003

This training was approved and given in accordance with
 Regulations for Connecticut State Agencies
 RCSA 20-440-1-9 and RCSA 20-441 and meets the
 requirements of the EPA Revised MAP under TSCA Title II of 4/4/94

Presented by

**Mystic Air Quality Consultants, Inc.
 1204 North Road, Groton, CT 06340 (800) 247-7746**

Expiration Date: 03/25/2004

Exam Grade: 100%

Exam Date: 03/25/2003

Training Director

Certificate Number: IMPR10543

Non-Responsive

CSP, RS

APPENDIX F
PHOTOGRAPHS



Photo 740: X-Ray Processing- Obstructed Electrical Panel



Photo 741: Hall – Water stained ceiling tiles



Photo 742: Office 1 – Water stained ceiling tile



Photo 748: Exterior View



Photo 752: Boiler Room – Mold on Drywall

APPENDIX G
RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Jersey 03079

**FINAL
INDUSTRIAL HYGIENE SURVEY REPORT
BURLINGTON ARMORY
BURLINGTON, NEW JERSEY**

April 2006
PN: 39741509

Non-Responsive



Office Manager

Non-Responsive



Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	3
2.2.3 Carbon Monoxide	3
2.2.4 Lighting.....	4
2.2.5 Lead.....	4
2.2.6 Asbestos.....	5
2.3 VENTILATION SYSTEM EVALUATION	6
2.4 NOISE MEASUREMENTS.....	6
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	6
2.6 INTERPRETATION OF RESULTS.....	6
3.0 FORMER INDOOR FIRING RANGE	8
3.1 OPERATION DESCRIPTION	8
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	8
3.2.1 Lead.....	8
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL.....	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lighting.....	9
4.2.2 Lead.....	9
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS.....	11
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
4.6 INTERPRETATION OF RESULTS.....	11
5.0 BOILER ROOM.....	12
5.1 OPERATION DESCRIPTION.....	12
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	12
5.2.1 Lead.....	12
5.2.2 Asbestos.....	12
5.3 VENTILATION SYSTEM EVALUATION	12
5.4 NOISE MEASUREMENTS.....	12
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	13
5.6 INTERPRETATION OF RESULTS.....	13
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	14

TABLE OF CONTENTS (Cont)

6.1	CONFINED SPACES	14
6.2	HEARING CONSERVATION	14
6.3	RESPIRATORY PROTECTION	14
6.4	HAZARD COMMUNICATION.....	14
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	14
7.0	REFERENCES	15

APPENDICES

Appendix A Armory Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Lead Dust in Armories

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting		
On the day of the survey, the illumination in the administrative offices and kitchen/ mess hall areas was inadequate in most circumstances.	Increase lighting in the administrative and kitchen areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the facility in amounts greater than 200 µg/ft ²	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
Asbestos		
All suspect asbestos containing materials were observed to be in good condition.	Maintain under asbestos operations and maintenance plan.	RAC 3
No site-specific asbestos operations and maintenance plan available. No warning labels in janitorial or maintenance areas.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3

FINDINGS AND RECOMMENDATIONS (Cont)

Findings	Recommendation	Risk Assessment Code
Hazard Communication		
Chemical Inventory sheet listed all hazardous chemicals on site.	Maintain labeling all secondary containers unless intended for immediate use (OSHA 1910.1200 (f)(4))	RAC 4
Secondary containers in the janitor's closet did not have labels.	Label all secondary containers not intended for immediate use (OSHA 29CFR1910.1200(f)(5))	RAC 4
Electrical Safety		
Electrical panels obstructed by a table in the drill hall and electrical room.	Electrical panels must be kept clear of obstructions for a minimum of 3 feet (OSHA 29 CFR 1910.303(g)(1)(i)).	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Burlington Armory located at 559 High Street in Burlington, New Jersey 08016. This report includes an executive summary and a description of the site activities and findings and a list of conclusions and recommendations.

On March 11, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Burlington, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Armorer **Non-Responsive** of the New Jersey ARNG was Mr. **Non-Responsive** site contact for this survey.

This armory is a two-story brick building, with an attached drill hall, that is constructed primarily of brick and mortar. This facility is built on a concrete slab, hardwood floors on the upper level with a pitched asphalt roof. The building was constructed in 1930's. A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards in offices could not be adjusted. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person. No complaints were expressed concerning workstations at the time of this survey.

Paints and thinners and other chemicals were located in the flammable storage lockers with the appropriate hazard communications data.

An obstructed electrical panel was observed in the electrical room (Photo 0783).

2.2 Chemical and Physical Agents Sampled

On the day of the survey, relative humidity, carbon dioxide and carbon monoxide measurements were made in the drill hall, mess hall, boiler room, readiness room, classroom, drill floor and outside. These measurements were all made using a TSI Q-Trak TM (Model 8551). No indoor air quality complaints were received during this survey.

2.2.1 Relative Humidity

Relative humidity on the day of the survey ranged from 25.5 –39.3 % throughout the various building areas with an average of 30.2%. This average reading was below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

Carbon dioxide concentrations ranged from a low of 540 to a spike of 961 parts per million (ppm), with an average of 730 ppm. The exterior reading was 443 ppm.

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants. ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 443 ppm on the day of the survey, the ASHRAE limit would be 1,143 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide concentrations ranged from 0 to 1.5 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments may include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting (foot candles)	Recommended Minimum Lighting (foot candles)
Mess Hall Center	Dining	38	50
Club Room	Recreation	20	30
Basement Hall	Hall	16	30
Readiness Room	Storage	21	30
First Sergeants Room	Office	31	50
Headquarters	Office	50	50
Classroom 1	Classroom	31	50
Recruiter's Office	Office	37	50
Drill Floor Center	Drill Floor	21	50

2.2.5 Lead

Paint chips were collected in the facility, where peeling paint was observed. Lead levels in paint greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

Table 2-2
Levels of Lead in Paint Found in the Former Firing Range

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Kitchen - Wall near window	0311-14	0.108	0.43
Foyer	0311-17	0.108	0.35

Wipe testing for lead was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 2-3 below shows the results of the lead sampling.

Table 2-3
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
2 nd Floor Hall - outside Classroom II	0311-08	0.108	16	200
Classroom #3 - Top of vending machine	0311-09	0.108	44	200
Kitchen - Stove	0311-10	0.108	20	200
Hall - Outside orderly room	0311-12	0.108	13	200
Blank	0311-13	N/A	8.2 µg	N/A

The analytical report from AMA is contained in Appendix D.

2.2.6 Asbestos

Bulk samples were collected from damaged suspect asbestos-containing materials (ACM) by Mr. Eric Frederick for a determination of asbestos content. These materials include floor tile and plaster. Analytical procedures were performed in accordance with the U.S. Environmental Protection Agency (EPA) Recommended Method for the Determination of Asbestos in Bulk Samples by Polarized Light Microscopy and Dispersion Staining (PLM/DS)(EPA-600/M4-82-020, EPA-600/R-93-116. Table 2-4 below presents the results of the sample analysis.

Table 2-4
Sample Results of Suspect ACM

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Kitchen	Skim Coat Plaster	0311-18A	NAD
Foyer	Skim Coat Plaster	0311-18B	NAD
Foyer	Skim Coat Plaster	0311-18C	NAD
Kitchen	Base Coat Plaster	0311-19A	NAD
Foyer	Base Coat Plaster	0311-19B	NAD

Table 2-4 (Cont)
Sample Results of Suspect ACM

Sample Location	Material Sampled	URS Sample Number	Total Asbestos (%)
Foyer	Base Coat Plaster	0311-19C	NAD
Armorer's Office	12" x 12" Brown Floor Tile	0311-20A	NAD
Armorer's Office	12" x 12" Brown Floor Tile	0311-20B	NAD
Armorer's Office	12" x 12" Brown Floor Tile	0311-20C	NAD
Armorer's Office	Floor Tile Mastic	0311-21A	NAD
Armorer's Office	Floor Tile Mastic	0311-21B	NAD
Armorer's Office	Floor Tile Mastic	0311-21C	NAD

NAD: "No Asbestos Detected"

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)).

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

ERGONOMICS: The ergonomic issues regarding desks, chairs and monitors need to be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey illumination in the administrative area was inadequate in most offices and generally throughout the facility. URS recommends increasing the use of area lighting or supplemental task lighting for each workstation in

the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

ASBESTOS: Samples of the floor tile that was present throughout this building area were determined not to contain asbestos in a concentration greater than one percent.

HAZARD COMMUNICATION: Unlabeled containers of paints and thinners were observed in the janitor's closet without material safety data sheets (MSDS).

ELECTRICAL SAFETY: The electrical panel in the electrical room was obstructed. Electrical panels must be kept clear of obstructions for a minimum of 3 feet.

3.0 FORMER INDOOR FIRING RANGE

3.1 Operation Description

The indoor firing range has been dismantled and this building area is now primarily used for storage.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was not conducted in the former firing range. At the time of the inspection this area was locked and keys could not be located.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: Lead sampling was not performed in this area.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a 5,000 square foot area with about a 30-foot high ceiling used for assembling personnel. The walls are constructed of cinder blocks with a hardwood floor.

A table obstructed the electrical panel in the drill hall (Photo 0769).

4.2 Chemical and Physical Agents Sampled

4.2.1 Lighting

Lighting in the drill hall was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 4-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

Table 4-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting (lux)	Recommended Minimum Lighting (lux)
Drill Floor Center	Drill Floor	21	30

On the day of the survey lighting in the drill hall was inadequate.

4.2.2 Lead

Wipe testing for lead dust was conducted in the drill hall using Ghost Wipes™, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 4-2 below shows the results of the lead sampling.

Table 4-2
Levels of Lead Dust Found in the Drill Hall

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Drill Floor West on Electrical Box	033-03	0.108	35	200
Drill Floor Northwest	0311-04	0.108	630	200
Drill Floor East Near Peeling Paint	0311-05	0.108	51	200
Drill Floor - Southeast	0311-07	0.108	79	200
Blank	0311-06	N/A	0.92	200

Sample numbers and locations can be found on the site map in Appendix A.

Paint chips were collected in two areas where paint was peeling and sent to AMA for analysis. The two samples were found to contain lead in a concentration within the allowable limits of the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 4-3 below shows the results of the lead paint testing.

Table 4-3
Levels of Lead in Paint Found in the Drill Hall

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Drill Floor - East Wall Yellow	0311-15	0.01	0.1
Drill Floor East Wall Brown	0311-16	0.01	0.047

The analytical report from AMA is contained in Appendix D.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: A wipe sample collected in the drill hall for analysis of lead content was found to be above allowable limits and require cleaning and further testing. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

ELECTRICAL SAFETY: The electrical panel in the drill hall was obstructed by a table. Electrical panels must be kept clear of obstructions for a minimum of 3 feet.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

Wipe testing for lead was conducted in the boiler room using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 5-1 below shows the results of the lead sampling.

**Table 5-1
Levels of Lead Dust Found in the Boiler Room**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Top of Water Heater	0311-11	0.108	74	200

5.2.2 Asbestos

Asbestos-containing pipe insulation was observed in the boiler room and appeared to be in good condition.

The EPA states that any material containing greater than 1% asbestos must be treated as ACM.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

ASBESTOS: Asbestos-containing pipe insulation in the boiler room was observed to be in good condition (Photo # 0779).

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A program was found regarding hazard communication. Training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62-2001: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

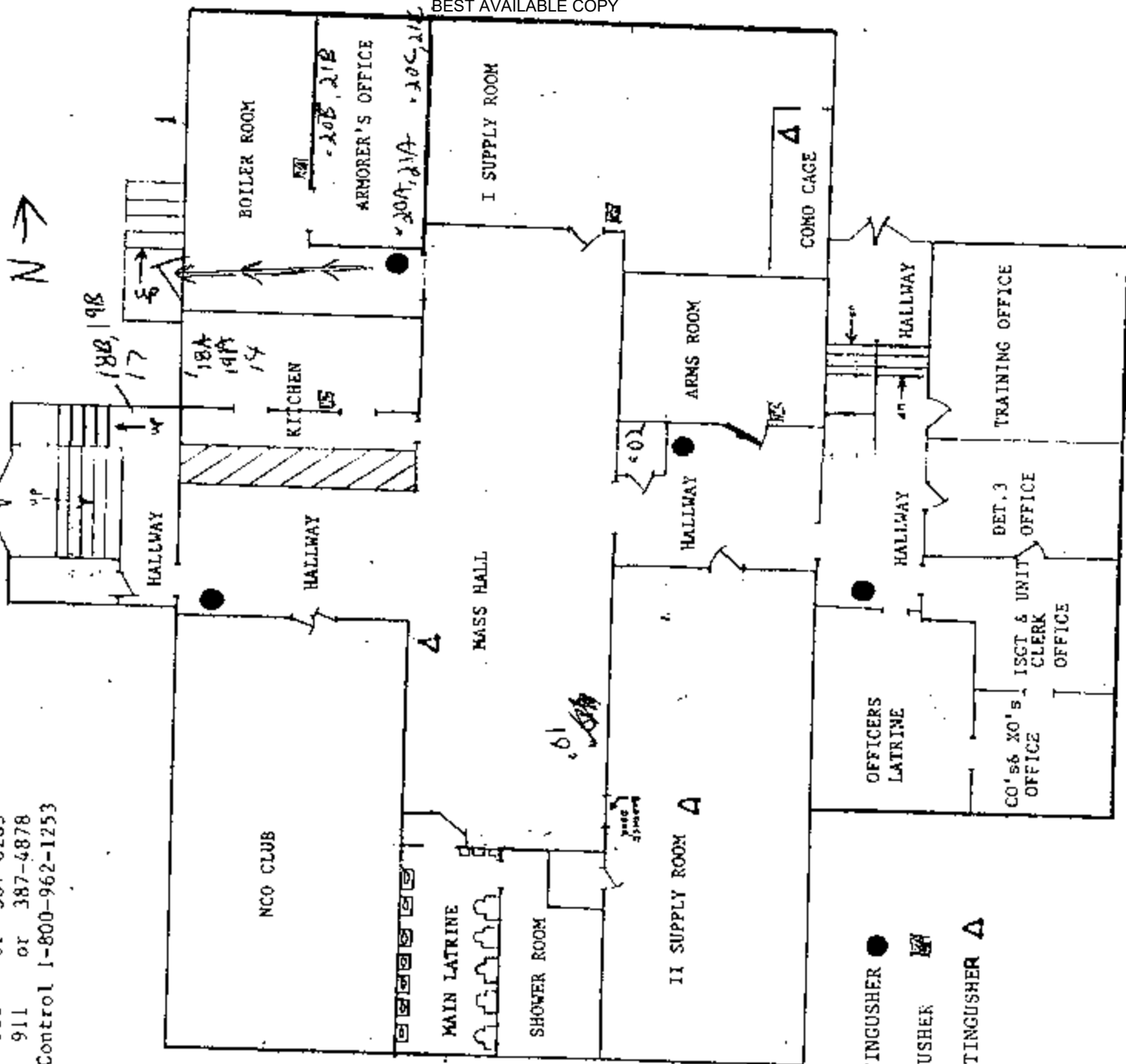
U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

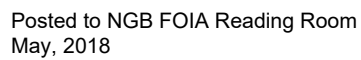
APPENDIX A
ARMORY DRAWING

Basement

Police 911 or 387-0205
 Fire 911 or 387-4878
 Poison Control 1-800-962-1253



A TYPE FIRE EXTINGUISHER ●
 ABC FIRE EXTINGUISHER ▤
 BC TYPE FIRE EXTINGUISHER ▲



APPENDIX B
PERSONNEL LIST

**PERSONEL LIST
BURLINGTON ARMORY**

Name	Rank
Non-Responsive	SGT
	SGT
	SGT
	CIV

APPENDIX C
HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301 JH Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Ammunition
Job Location: Burlington, NJ
Chain Of Custody: 128482
Date Analyzed: 6/28/2004
Person Submitting: [Redacted]
Report Date: 28-JUN-04

Attention: [Redacted]

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0449156	0311-01	Furnace	Wipe	***	0.108	2.79 ug/ft²	11 ug/ft²	
0449157	0311-02	Furnace	Wipe	***	0.108	2.79 ug/ft²	19 ug/ft²	
0449158	0311-03	Furnace	Wipe	***	0.108	13.94 ug/ft²	35 ug/ft²	
0449159	0311-04	Furnace	Wipe	***	0.108	111.52 ug/ft²	630 ug/ft²	
0449160	0311-05	Furnace	Wipe	***	0.108	13.94 ug/ft²	51 ug/ft²	
0449161	0311-06	Furnace	Wipe	***	N/A	0.30 ug	0.92 ug	
0449162	0311-14	Flame	Paint Chip	***	N/A	0.01 %Pb	0.43 %Pb	
0449163	0311-15	Flame	Paint Chip	***	N/A	0.01 %Pb	0.1 %Pb	
0449164	0311-16	Flame	Paint Chip	***	N/A	0.01 %Pb	0.047 %Pb	
0449165	0311-17	Flame	Paint Chip	***	N/A	0.01 %Pb	0.35 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-311B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-311B
MVA = Not Applicable mg/kg = parts per million (ppm) ug/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [Redacted] Technical Manager: [Redacted]

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p. 3
No. 2678

Client: National Guard Bureau

Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name:	Armory
Job Location:	Burlington, NJ

Chain Of Custody: 128482

Date Analyzed: 05/28/2004

Havre de Grace, Maryland 21078

Job Number: Not Provided

P.O. Number: BPA #FW912K6-04-A0002

Person Submitting:

Attention:

Page 2 of 2

Summary of Polarized Light Microscopy

[illegible]

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The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- TEM RECOMMENDATION** - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- MATRIX REDUCTION RECOMMENDATION** - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected"

TR = "Trace equals less than 1% of this component"

Non-Responsive

FOIA Requested Record #J-15-00

Released by National Guard Bureau
Page 183 of 1660

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CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVNSI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Burlington Armory
Job Location: Burlington, NJ
Job Number: Not Provided
P.O. Number: Not Provided

Chain Of Custody: 140555
Date Submitted: 7/12/2005
Person Submitting: [Redacted]
Date Analyzed: 7/13/2005

Report Date: 13-Jul-05

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0551345	0311-07	Furnace	Wipe	***	0.108	13.94 ug/ft²	79 ug/ft²	
0551346	0311-08	Furnace	Wipe	***	0.108	2.79 ug/ft²	16 ug/ft²	
0551347	0311-09	Furnace	Wipe	***	0.108	13.94 ug/ft²	44 ug/ft²	
0551348	0311-10	Furnace	Wipe	***	0.108	2.79 ug/ft²	20 ug/ft²	
0551349	0311-11	Furnace	Wipe	***	0.108	13.94 ug/ft²	74 ug/ft²	
0551350	0311-12	Furnace	Wipe	***	0.108	2.79 ug/ft²	13 ug/ft²	
0551351	0311-13	Furnace	Wipe	***	0.108	2.79 ug/ft²	8.2 ug/ft²	

See QC Summary for analytical results of quality control samples associated with these samples.

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Analyst: [Redacted]

Technical Manager: [Redacted]

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APPENDIX E
TRAINING CERTIFICATES

Non-Responsive

Certificate of Training

Awarded to

[Redacted] Non-Responsive

**For successful completion of an 8 Hour, 1 Day
Asbestos Inspector & Management Planner
Annual Refresher Training**

MARCH 25, 2003

This training was approved and given in accordance with
Regulations for Connecticut State Agencies
RCSA 20-440-1-9 and RCSA 20-441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94

Presented by

**Mystic Air Quality Consultants, Inc.
1204 North Road, Groton, CT 06340 (800) 247-7746**

Certificate Number: IMPR10543

Exam Grade: 100%

Exam Date: 03/25/2003

Expiration Date: 03/25/2004

[Redacted] Non-Responsive

[Redacted] CSP, RS

[Redacted] Training Director

APPENDIX F
PHOTOGRAPHS



Photo 0768: Mess Hall – wipe sample 0311-01

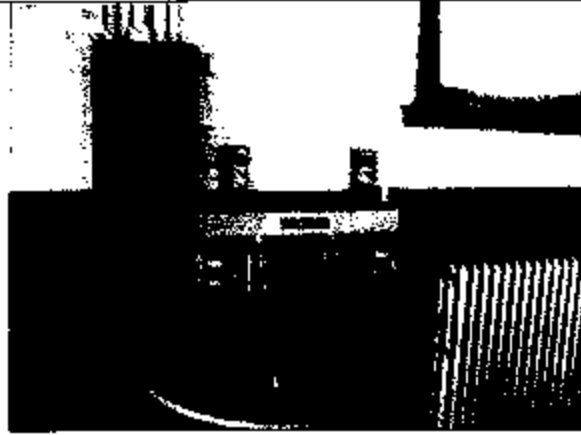


Photo 0769: Drill Hall – Obstructed electrical control panel, Wipe sample 0311-03

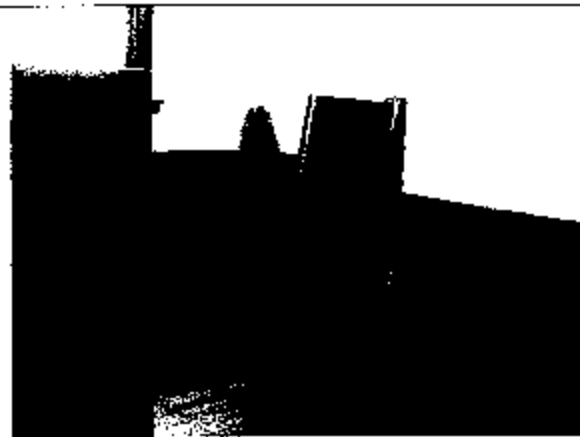


Photo 0770: Drill Hall – Wipe sample 0311-04

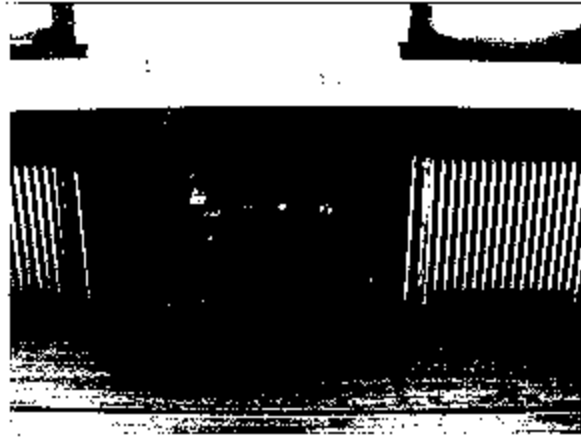


Photo 0771: Drill Hall – Wipe sample 0311-05



Photo 0772: Drill Hall – Wipe sample 0311-07



Photo 0773: Second Floor Hall – Wipe sample 0311-08



Photo 0774: Basement Hall - wipe sample 0311-02



Photo 0775: Classroom 3 - Wipe sample 0311-09

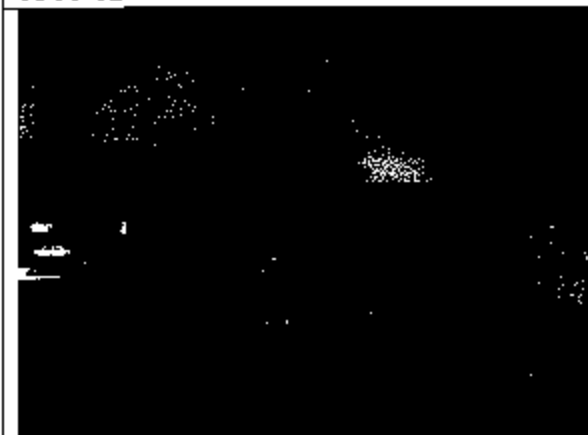


Photo 0776: Kitchen Wipe sample 0311-10



Photo 0777: Boiler Room - Wipe sample 0311-11



Photo 0778: First Floor Hall - Wipe sample 0311-12



Photo 0783: Electrical Room - Obstructed electrical panels



Photo 0786: Office Ergonomics



Photo 0790: Exterior View

APPENDIX G

RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Hampshire 03079

**INDUSTRIAL HYGIENE SURVEY REPORT
CHERRY HILL ARMORY
GROVE STREET AND PARK BOULEVARD
CHERRY HILL, NEW JERSEY**

December 2005
PN: 39741508

Non-Responsive

Office Manager

Non-Responsive

Project Manager

URS Corporation
5 Industrial Way
Salem, NH 03079-2830
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TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting.....	3
2.2.5 Lead	5
2.2.6 Asbestos.....	6
2.3 VENTILATION SYSTEM EVALUATION	6
2.4 NOISE MEASUREMENTS.....	7
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	7
2.6 INTERPRETATION OF RESULTS.....	7
3.0 FORMER FIRING RANGE	8
3.1 OPERATION DESCRIPTION.....	8
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	8
3.2.1 Lead	8
3.3 VENTILATION SYSTEM EVALUATION	8
3.4 NOISE MEASUREMENTS.....	8
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	8
3.6 INTERPRETATION OF RESULTS.....	9
4.0 DRILL HALL	10
4.1 OPERATION DESCRIPTION.....	10
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	10
4.2.1 Lead	10
4.3 VENTILATION SYSTEM EVALUATION	10
4.4 NOISE MEASUREMENTS.....	10
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	10
4.6 INTERPRETATION OF RESULTS.....	11
5.0 BOILER ROOM	12
5.1 OPERATION DESCRIPTION.....	12
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	12
5.2.1 Lead	12
5.2.2 Asbestos.....	12
5.3 VENTILATION SYSTEM EVALUATION	12
5.4 NOISE MEASUREMENTS.....	12
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	12
5.6 INTERPRETATION OF RESULTS.....	13
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	14
6.1 CONFINED SPACES.....	14

TABLE OF CONTENTS (cont.)

6.2	HEARING CONSERVATION	14
6.3	RESPIRATORY PROTECTION	14
6.4	HAZARD COMMUNICATION.....	14
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	14
7.0	REFERENCES	15

APPENDICES

APPENDIX A	SHOP DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	HAZARDOUS MATERIALS LIST
APPENDIX D	ANALYTICAL RESULTS
APPENDIX E	TRAINING CERTIFICATES
APPENDIX F	PHOTOGRAPHS
APPENDIX G	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in approximately half the offices.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from a few offices, from the drill floor, and the boiler room in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	Personnel trained in accordance with the OSHA Lead Standard should clean the drill hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Mold		
Watermarks were observed on the ceiling tiles. Mold growth could become an issue if left unattended.	Determine and repair source of water, Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 4
Ergonomic		
Computer work stations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (DoD, OSHA General Duty)	RAC 3

1.0 SUMMARY

At the request of the National Guard Bureau Region North Industrial Hygiene Office (NGB), URS Corporation (URS) conducted an industrial hygiene survey at the Armory located at Grove Street and Park Boulevard in Cherry Hill, New Jersey. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On April 15, 2004, Ms. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Cherry Hill, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. **Non-Responsive** of the State of New Jersey was Ms. **Non-Responsive** site contact for this survey.

A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs and armrests were in a fixed position and keyboards could not be adjusted in the Civil Air Patrol Command Office (Photo # 4) and Company A Office E (Photo # 2). Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks on the ceiling in the Company A Office (Photo # 1), 112th Field Artillery Office (Photo # 3), and Recruiter's Office (Photo # 7) may indicate the potential for mold growth.

2.2 Chemical and Physical Agents Sampled

2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 38% to 40% with an average of 39%. This average reading was within the recommended range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Armory. Carbon dioxide concentrations ranged from 510 to 820 parts per million (ppm), with an average of 665 ppm. Carbon dioxide levels were measured using a direct reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is

people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above Outdoor level. Given an outdoor level of 503 ppm on the day of the survey, the ASHRAE limit would be 1203 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Armory. Carbon monoxide concentrations remained at 0 parts per million (ppm) throughout the survey period. This measured level was below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Illuminance (lux / foot candles)
Company A Office Conference Area	Administrative Duties	430 / 39.9	500 / 50
Company A Office A	Administrative Duties	450 / 41.8	500 / 50
Company A Office B	Administrative Duties	387 / 36.0	500 / 50
Company A Office C	Administrative Duties	791 / 73.5	500 / 50
Company A Office D	Administrative Duties	350 / 32.5	500 / 50
Company A Office E	Administrative Duties	472 / 43.8	500 / 50
Company A Office F	Administrative Duties	286 / 26.6	500 / 50
Company A Office G	Administrative Duties	1447 / 134.4	500 / 50
Company A Office H	Administrative Duties	803 / 74.6	500 / 50
Delta Battery Office	Administrative Duties	468 / 43.5	500 / 50
Delta Battery Office A	Administrative Duties	281 / 26.1	500 / 50
Delta Battery Office B	Administrative Duties	293 / 27.2	500 / 50
Delta Battery Office C	Administrative Duties	219 / 20.3	500 / 50
Delta Battery Office D	Administrative Duties	195 / 18.1	500 / 50
Delta Battery Office E	Administrative Duties	187 / 17.4	500 / 50
Delta Battery Office F	Administrative Duties	351 / 32.6	500 / 50
Delta Battery Commander Office G	Administrative Duties	485 / 45.1	500 / 50
Delta Battery Office H	Administrative Duties	471 / 43.8	500 / 50
Delta Battery Copy Room	Administrative Duties	773 / 71.8	500 / 50
Civil Air Patrol Office	Administrative Duties	334 / 31.0	500 / 50
Civil Air Patrol Commander Office	Administrative Duties	753 / 70.0	500 / 50
Civil Air Patrol Supply	Supply Area	512 / 47.6	300 / 30
112 th Field Artillery Offices Conference Room	Administrative Duties	963 / 89.5	500 / 50
112 th Field Artillery Office A	Administrative Duties	1190 / 110.6	500 / 50
Armorer's Office	Administrative Duties	890 / 82.7	500 / 50
Armorer's Office Conference Room	Administrative Duties	622 / 57.8	500 / 50
Armorer's Office B	Administrative Duties	570 / 53.0	500 / 50
Family Support Group Room	Administrative Duties	570 / 53.0	500 / 50
Family Support Office A	Administrative Duties	577 / 53.6	500 / 50

Table 2-1 (Cont)
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux)	Recommended Illuminance (lux)
Family Support Office B	Administrative Duties	150 / 13.9	500 / 50
Det 1 HHB 3/112 Conference Room	Administrative Duties	447 / 41.5	500 / 50
Det 1 HHB 3/112 Office A	Administrative Duties	772 / 71.7	500 / 50
Det 1 HHB 3/112 Office B	Administrative Duties	648 / 60.2	500 / 50
Medic's Supply	Supply Area	432 / 40.1	500 / 50
Recruiter's Office	Administrative Duties	753 / 70.0	500 / 50
Recruiter's Office A	Administrative Duties	1240 / 115.2	500 / 50
Kitchen	Kitchen	459 / 42.6	500 / 50
Classroom	Learning Center	113 / 10.5	500 / 50
Supply Cages	Supply Area	186 / 17.3	300 / 30
Chemical Supply/Armorer's Room	Supply Area	386 / 35.9	300 / 30

On the day of the survey the illuminance in the administrative area was inadequate in several offices.

2.2.5 Lead

Wipe testing for lead dust was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 2-3 below shows the results of the lead sampling.

Table 2-3
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Company A Office – Windowsill	WS-01	0.111	55	200
Company A Office G – Box	WS-02	0.111	1100	200

Table 2-3 (Cont)
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Delta Battery Office C – Windowsill	WS-03	0.111	14	200
Delta Battery Office G – Table	WS-04	0.111	19	200
Delta Battery Office H – Table	WS-05	0.111	16	200
Artillery Conference Room – Radiator	WS-06	0.111	73	200
Civil Air Patrol Commander – Cabinet	WS-07	0.111	220	200
Det 1 HHB Conference Room – Radiator	WS-08	0.111	13	200
Family Support – Bookcase	WS-09	0.111	13	200
Recruiter's Office – Radiator	WS-10	0.111	110	200
Kitchen – Electrical Box	WS-11	0.111	33	200
Future Museum – Table	WS-13	0.111	60	200
Hall Outside Mail Room	RWS-01	0.111	180	200
Armorer's Conference Room – Lock Box	RWS-02	0.111	670	200
Kid's Golf Room – Windowsill	RWS-05	0.111	830	200

Lead dust levels were found to exceed the NGB recommended level in several locations.

2.2.6 Asbestos

Not applicable to this operation.

2.3 Ventilation System Evaluation

Not applicable to this operation.

December 30, 2005

PN: 39741508 (J1 Army National Guard 33741506 - Cherry Hill - RWS Report) Cherry Hill Armory - Reviewed Final.doc

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Page 204 of 1660

URS

6

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

ERGONOMICS: The ergonomic issues with desks, chairs and monitors should be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in several offices. URS recommends increasing lighting in the few administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: Four of the fifteen surface wipe samples collected in the administrative area were found to contain lead dust levels above the maximum limit set by the National Guard Bureau. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

MOLD: The water stains on the ceilings could lead to mold problems if not addressed.

3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage and a fitness center.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

Table 3-1
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Former Firing Range-Flammable Cabinet	FR-01	0.111	25	200
Former Firing Range-Radiator	FR-02	0.111	16	200
Former Firing Range-Floor	FR-03	0.111	19	200
Former Firing Range-Exhaust Fan	FR-04	0.111	51	200
Former Firing Range-Weight Machine	FR-05	0.111	58	200

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: The five surface wipe samples collected in the former firing range were found to contain lead dust levels below the maximum limit set by the National Guard Bureau.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is an area with about a 30-foot high ceiling used for assembling personnel and storing equipment. The walls are constructed of cinder-block with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

Table 4-1
Levels of Lead Dust Found in the Drill Hall

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall – Electrical Box	WS-12	0.111	60	200
Drill Hall – Floor	RWS-04	0.111	350000	200

The level of lead dust found on the drill hall floor exceeded the NGB recommended level.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: The wipe sample collected from the floor in the drill hall was found to contain lead at a level above the NGB recommended level. URS recommends cleaning the drill hall floor where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025). The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Additional lead wipes collected will be analyzed and a supplemental letter will report results.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace, associated piping, and the electrical panels.

5.2 Chemical and Physical Agents Sampled

5.2.1 Lead

Wipe testing for lead dust was conducted in the boiler room using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

**Table 5-1
Level of Lead Dust Found in the Boiler Room**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Boiler Room – Temperature Indicator	RWS-03	0.111	710	200

5.2.2 Asbestos

Not applicable to this operation.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

LEAD: The one surface tested in the boiler room area for lead was found to contain levels above the NGB guidelines.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62-2001: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15, 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

December 30, 2005

PN: 39741508 : U:\Army National Guard\39741508 - Cherry Hill NJ\Reports\Cherry Hill Ammunition - Reviewed Final.doc

URS

15

APPENDIX A

SHOP DRAWING

BEST-AVAILABLE COPY

Hand-drawn floor plan of a building. The plan includes a large central hall, several smaller rooms, and a kitchen. Dimensions are provided for many rooms, such as 11' x 13', 11' x 11', and 11' x 10'. The plan is oriented with a north arrow pointing towards the top right. The drawing is a black and white photocopy of a hand-drawn sketch.

APPENDIX B

PERSONNEL LIST

**CHERRY HILL ARMORY
PERSONNEL**

Non-Responsive

NAME

Ranks not provided.

APPENDIX C

HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX D

ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Ammunition
Job Location: Cherry Hill, NJ
Job Number: Not Provided
P.O. Number: BPA #W912KG-04-A0002

Chain Of Custody: 128491
Date Analyzed: 07/01/2004
Person Submitting: [Redacted]
Report Date: 01-Jul-04

Attention: [Redacted] Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0449279	FR-01	Furnace	Wipe	***	0.111	2.70 ug/ft²	25 ug/ft²	
0449280	FR-02	Furnace	Wipe	***	0.111	2.70 ug/ft²	16 ug/ft²	
0449281	FR-03	Furnace	Wipe	***	0.111	2.70 ug/ft²	19 ug/ft²	
0449282	FR-04	Furnace	Wipe	***	0.111	13.50 ug/ft²	51 ug/ft²	
0449283	FR-05	Furnace	Wipe	***	0.111	13.50 ug/ft²	58 ug/ft²	
0449284	WS-01	Furnace	Wipe	***	0.111	13.50 ug/ft²	55 ug/ft²	
0449285	WS-02	Flame	Wipe	***	0.111	108.01 ug/ft²	1100 ug/ft²	
0449286	WS-03	Furnace	Wipe	***	0.111	2.70 ug/ft²	14 ug/ft²	
0449287	WS-04	Furnace	Wipe	***	0.111	2.70 ug/ft²	19 ug/ft²	
0449288	WS-05	Furnace	Wipe	***	0.111	2.70 ug/ft²	16 ug/ft²	
0449289	WS-06	Furnace	Wipe	***	0.111	13.50 ug/ft²	73 ug/ft²	
0449290	WS-07	Furnace	Wipe	***	0.111	67.51 ug/ft²	220 ug/ft²	
0449291	WS-08	Furnace	Wipe	***	0.111	2.70 ug/ft²	13 ug/ft²	
0449292	WS-09	Furnace	Wipe	***	0.111	2.70 ug/ft²	13 ug/ft²	
0449293	WS-10	Furnace	Wipe	***	0.111	13.50 ug/ft²	110 ug/ft²	
0449294	WS-11	Furnace	Wipe	***	0.111	13.50 ug/ft²	33 ug/ft²	
0449295	WS-12	Furnace	Wipe	***	0.111	13.50 ug/ft²	60 ug/ft²	
0449296	WS-13	Furnace	Wipe	***	0.111	13.50 ug/ft²	45 ug/ft²	
0449297	RWS-01	Furnace	Wipe	***	0.111	67.51 ug/ft²	180 ug/ft²	
0449298	RWS-02	Flame	Wipe	***	0.111	108.01 ug/ft²	670 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, the report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from the Laboratories. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and responsibility for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AEMMA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

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Released to NGB FOIA Reading Room
May, 2018

Client:	National Guard Bureau	Job Name:	Army	Chain Of Custody:	128491
Address:	301-TH Old Bay Lane, Attn: NGB-AVN-S1, State Military Reservation	Job Location:	Cherry Hill, NJ	Date Analyzed:	07/01/2004
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	
		P.O. Number:	BPA #W912K6-04-A0002	Report Date:	01-Jul-04

Attention:

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0449299	RWS-03	Flame	Wipe	***	0.111	108.01 ug/ft²	710 ug/ft²	
0449300	RWS-04	Flame	Wipe	***	0.111	108.01 ug/ft²	350000 ug/ft²	
0449301	RWS-05	Flame	Wipe	***	0.111	108.01 ug/ft²	830 ug/ft²	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800/R-93/200(M)-7420; Water: SM-3111B

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B
mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)
N/A = Not Applicable

ug/L = parts per billion (ppb)
ug/L = micrograms
% Pb = percent lead by weight

Technical Manager

Analysis

FOIA Requested Record #J-15-00

Released by National Guard Bureau
Page 222 of 1660

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a matter of protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from the FBI Laboratory. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and responsibility for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHTERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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APPENDIX E

TRAINING CERTIFICATES

Certificate of Training

Non-Responsive

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

DECEMBER 5, 2003

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies

RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRF11392

Exam Grade: 87%

Exam Date: 12/05/2003

Expiration Date: 12/05/2004

Non-Responsive

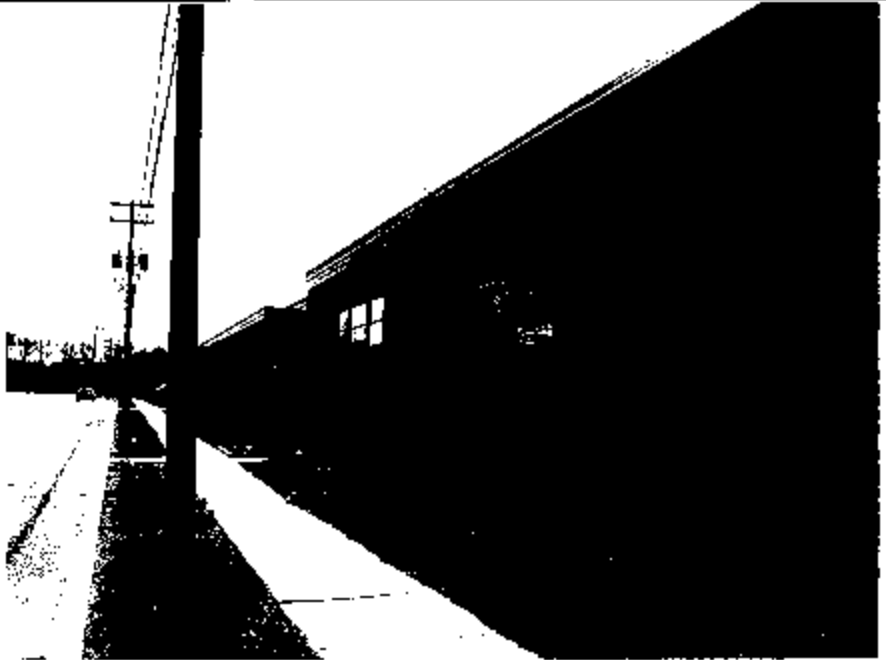
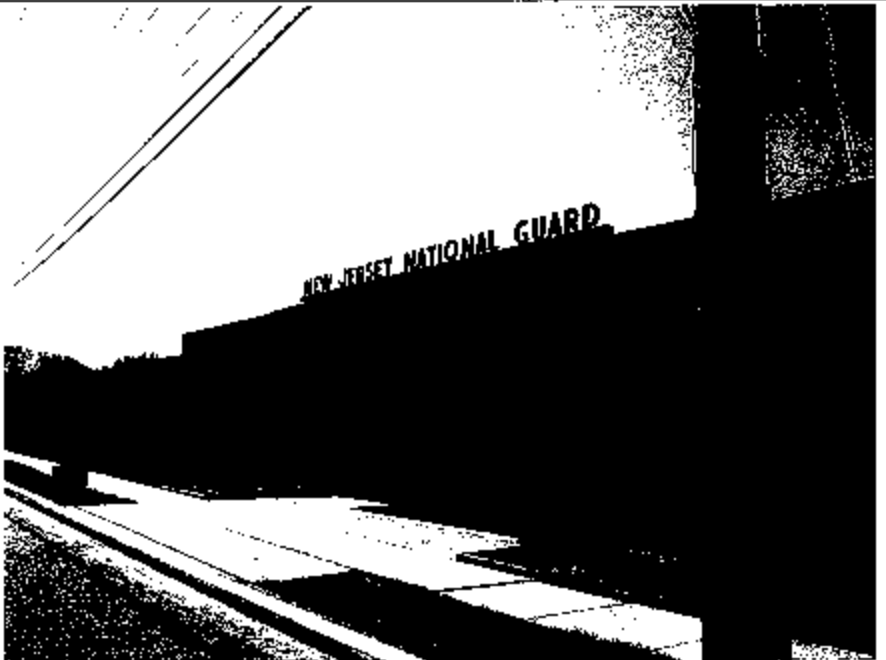
TH, CSP, RS

Training Director

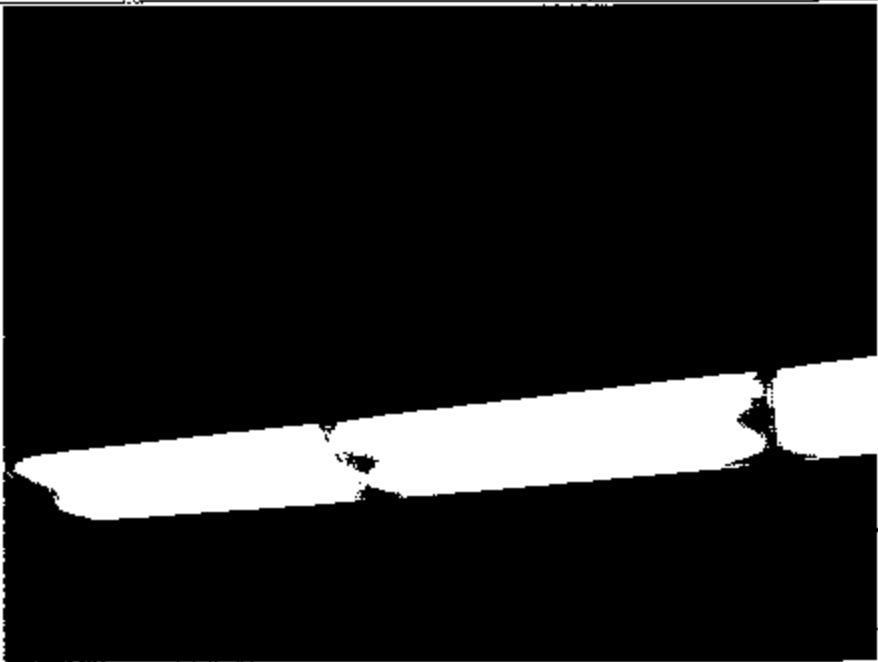

APPENDIX F

PHOTOGRAPHS

URS**PHOTOGRAPHIC RECORD**


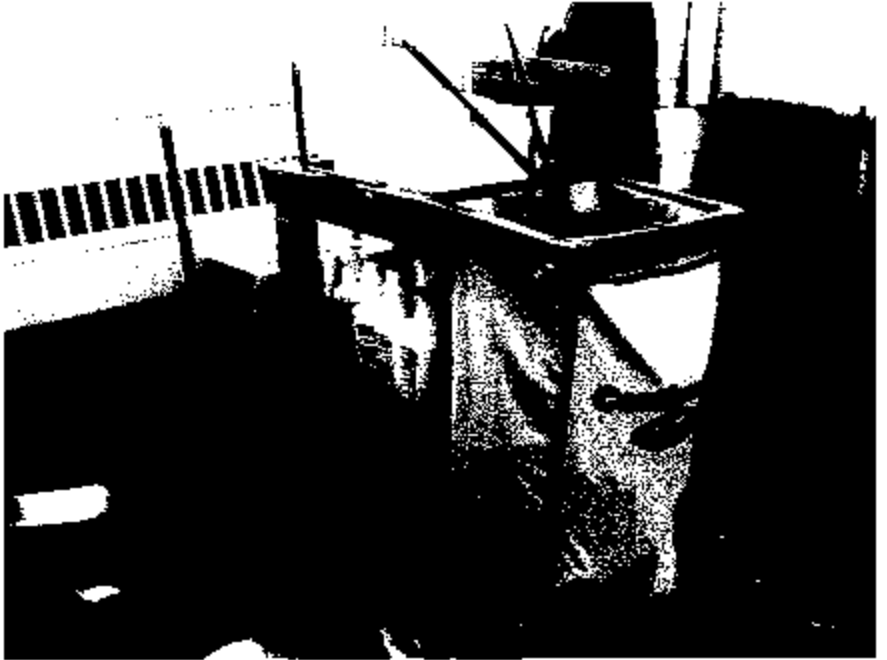
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 1	Date: 4/15/04		
Description: Cherry Hill Armory			
Photo No. 2	Date: 4/15/04		
Description: Cherry Hill Armory			


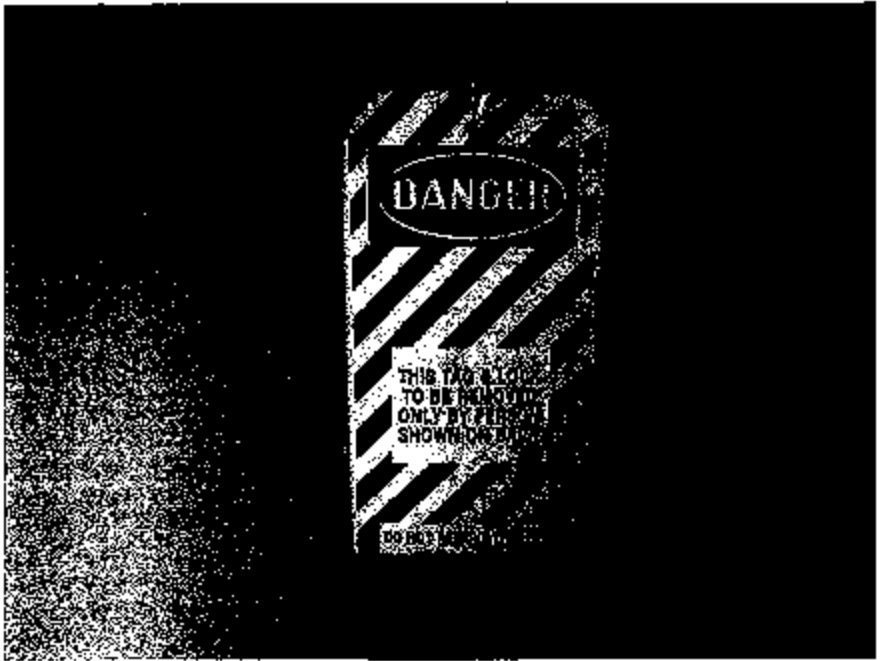
URS**PHOTOGRAPHIC RECORD**


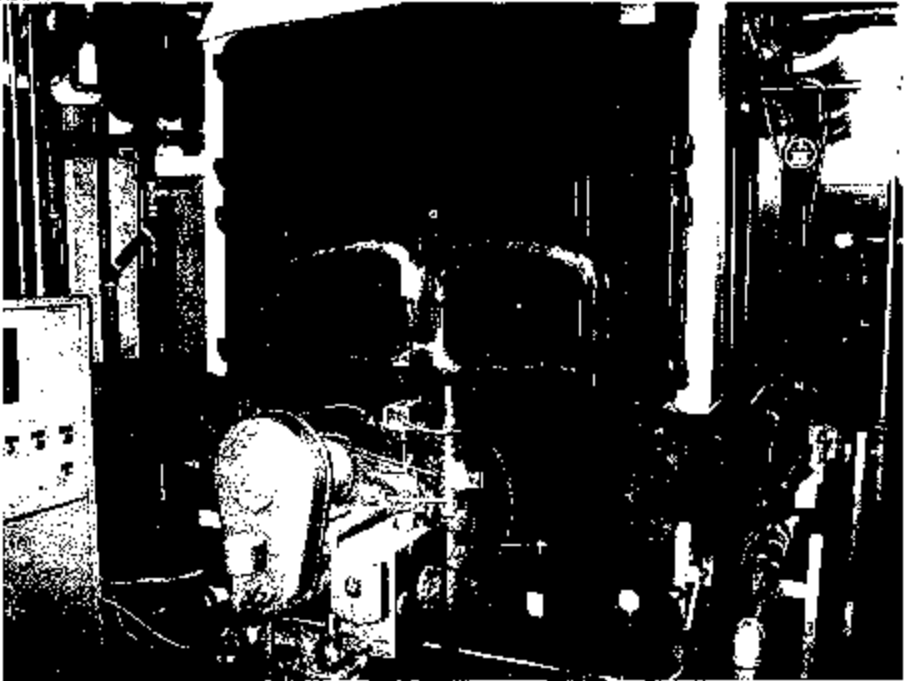
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 3	Date: 4/15/04		
Description: Co. A Offices – Water Damaged Ceiling Tile			
Photo No. 4	Date: 4/15/04		
Description: Co. A Office E – Desk Set-up			

URS**PHOTOGRAPHIC RECORD****Client Name:****Site Location:**
Cherry Hill Armory**Project No.**
39741508**Photo No.**
5**Date:**
4/15/04**Description:**112th Field Artillery Office A – Water
damaged Ceiling Tile**Photo No.**
6**Date:**
4/15/04**Description:**Civil Air Patrol Command Office – Desk
Set-up



URS**PHOTOGRAPHIC RECORD**

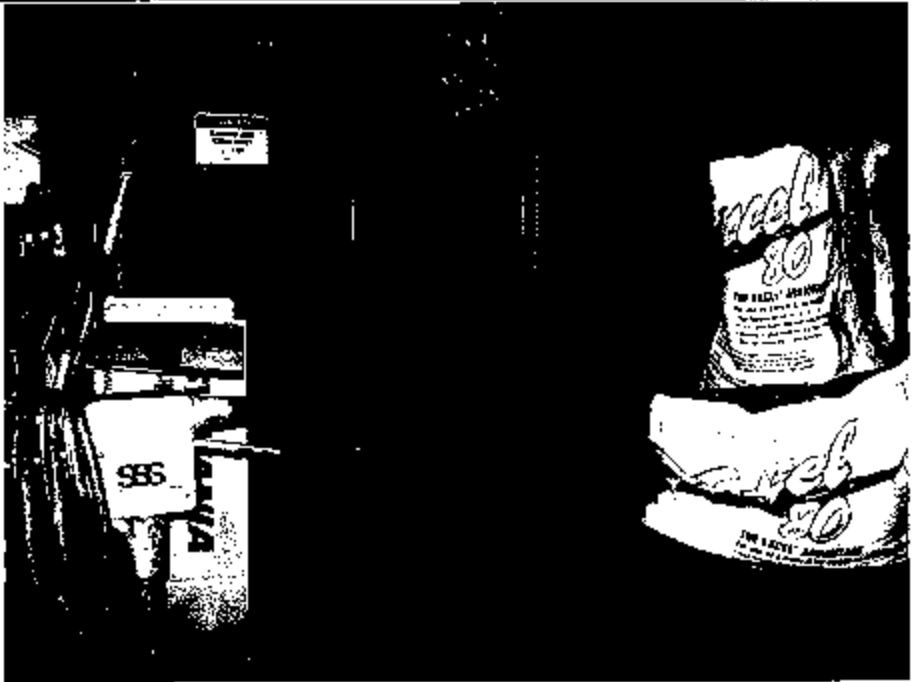
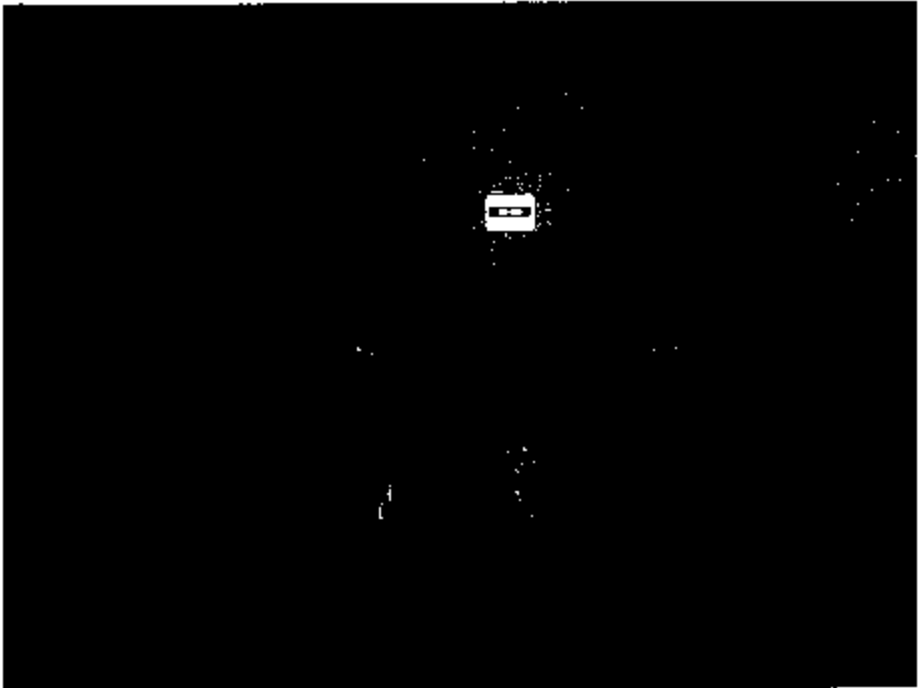
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 7	Date: 4/15/04		
Description: Det HHB Office A – Desk Set-up			
Photo No. 8	Date: 4/15/04		
Description: Men's Room Cleaning Cart- Chemical Storage			

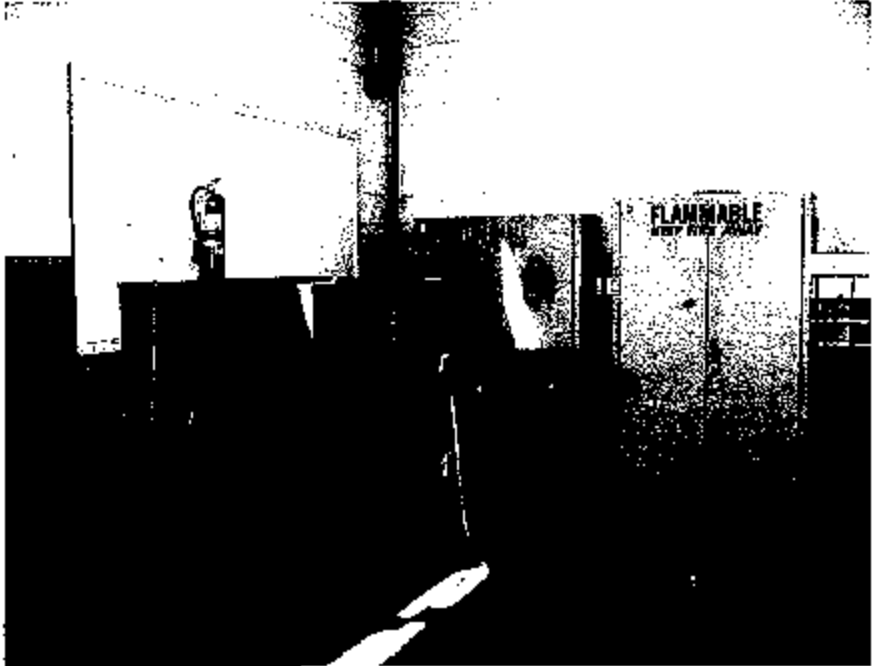

URS		PHOTOGRAPHIC RECORD	
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 9	Date: 4/15/04		
Description: Recruiter's Office – Water Damaged Ceiling Tile			
Photo No. 10	Date: 4/15/04		
Description: Recruiter's Office – Electrical Equipment Tagged Out			


URS		PHOTOGRAPHIC RECORD	
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 11	Date: 4/15/04		
Description: Drill Hall			
Photo No. 12	Date: 4/15/04		
Description: Boiler Room			

URS**PHOTOGRAPHIC RECORD**

Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 13	Date: 4/15/04		
Description: Boiler Room – Electrical Panels			
Photo No. 14	Date: 4/15/04		
Description: Workshop/Storage – Chemical Storage			

URS		PHOTOGRAPHIC RECORD	
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 15	Date: 4/15/04		
Description: Workshop/Storage – Flammable Cabinets			
Photo No. 16	Date: 4/15/04		
Description: Drill Hall - Vaults			

URS		PHOTOGRAPHIC RECORD	
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 17	Date: 4/15/04		
Description: Drill Hall – Flammable Cabinets			
Photo No. 18	Date: 4/15/04		
Description: Former Firing Range			

URS		PHOTOGRAPHIC RECORD	
Client Name:		Site Location: Cherry Hill Armory	Project No. 39741508
Photo No. 19	Date: 4/15/04		
Description: Former Firing Range 0 Flammable Cabinet			

APPENDIX G

RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.



1215 Manor Drive, Suite 205
Mechanicsburg, PA 17055
Phone: 717.590.7031
Fax: 717.590.7936
www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility
Cherry Hill

Prepared For: National Guard Bureau Region North IH
301-IH Old Bay Lane
Havre de Grace, MD 21078

Survey Location: Cherry Hill Readiness Center
Grove Street & Park Boulevard
Cherry Hill, NJ 08002

Prepared By: Compliance Management International, Inc.
1215 Manor Drive
Suite 205
Mechanicsburg, PA 17055

Survey Date: January 25, 2013

Report Date: February 27, 2013

Non-Responsive

Manager, Industrial Hygiene Services

Table of Contents

Section 1.0 Executive Summary	3
Section 2.0 Operation Description & Observations.....	4
Section 3.0 Lead Testing.....	5
Section 4.0 Lighting.....	7
Section 5.0 Indoor Air Quality.....	8
Section 6.0 Ventilation Survey	10
Section 7.0 Suspect Asbestos Containing Building Materials.....	11
Section 8.0 Equipment	12
Section 9.0 Limitations	13
Appendix A. Laboratory Analysis Report	14
Appendix B. Photographs	15
Appendix C. Floor Plan	16
Appendix D. References	17

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on January 25, 2013, at the Cherry Hill Readiness Center located at Grove Street & Park Boulevard. The survey was performed by Mr. Non-Responsive.

1. Lead surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft^2) in three locations. Air samples were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3). See Section 3.0 for detailed report findings.
2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in one location. See Section 4.0 for detailed report findings.
3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during this survey.
 - a. Temperature levels were less than the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommended guideline of 68-79 degrees F in some indoor locations evaluated.
 - b. Relative humidity levels were less than the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in indoor locations evaluated.
 - c. Carbon dioxide levels did not exceed the ASHRAE recommended limit. This is an indication that outdoor air ventilation is adequate.
 - d. Carbon monoxide levels measured were less than the recommended guideline.

See Section 5.0 for detailed report findings.

4. Water infiltration is currently occurring over the Offices Wing and the Drill Hall. See Section 5.0 for detailed report findings.
5. Suspect asbestos containing materials were observed. All materials were observed to be intact and in good condition. See Section 6.0 for detailed report findings.

Section 2.0 Operation Description & Observations

The Cherry Hill Readiness Center is mainly an administrative facility with a drill hall, offices, classrooms and storage areas. There were approximately 12 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in 1952. The building is one story with a brick exterior. The interior walls are primarily concrete block, drywall, plaster and metal. The floors are concrete, vinyl floor tile, terrazzo and carpet.

There is a detached three bay garage that is used for storage. No vehicle maintenance is performed at this facility. There is an overhead vehicle exhaust system in place.

There is no central Heating Ventilation & Air-conditioning (HVAC) system present in the facility. Heat is proved by a gas fired hot water boiler, and some areas of the building have portable air conditioning units.

The area of the building that was once a firing range has been converted into a storage room. No firing range components remain.

There is no child-care facility in the building.

Overall housekeeping practices were good. Areas were clean and well kept.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Sgt. [Non-Responsive] and Sgt. [Non-Responsive] from the Army National Guard Safety Office were onsite during the survey.

Section 3.0 Lead Testing

Due to the age of the building (1952) there is the potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m ³	Surface ug/ft ²
1	Drill Hall	<5.4	*
2	Converted Firing Range/Storage	<5.4	*
3	Converted Firing Range/Storage – Floor	*	<110
4	Converted Firing Range/Storage – Exhaust Fan	*	510
5	Converted Firing Range/Storage Top of Wall Locker	*	210
6	Drill Hall – Floor	*	<110
7	Drill Hall – Top of Water Fountain	*	<110
8	Drill Hall – Floor by Entrance to Converted Firing Range/Storage	*	130
9	Drill Hall – Top of AED Station	*	<110
10	Kitchen – Top of Paper Towel Dispenser	*	<110
11	Kitchen – Top of Control Box	*	220
12	S-1 Office – Book Shelf	*	<110
13	Armory Office – Top of Book Shelf	*	<110
14	Mail Room – Top of File Cabinet	*	<110
15	Orderly Office – Top of Table	*	<110
16	Recruiting Office – Top of Electrical Box	*	<110
17	S-3 Office – Top of Desk	*	<110
18	Dining Room – Top of UV Supply Grill	*	<110
19	Radio Vault – Top of Metal Rack	*	<110
20	Lounge – Top of AV Cart	*	<110
21	Detached Garage/Storage – Floor	*	120
22	Blank Wipe	*	<12 ug
23	Blank Air	<3 ug	*
-	Criteria	50	200

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **ug/ft²** = micrograms per square foot

4. **ug/m³** = micrograms per cubic meter
5. **ug** = micrograms

Sources:

1. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM)
2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 ug/ft² as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of 40 ug/ft² on floors and 250 ug/ft² on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were at or above the recommended guideline of 200 ug/ft² in the following locations:
 - Converted Firing Range/Storage – Exhaust Fan
 - Converted Firing Range/Storage – Top of Wall Locker
 - Kitchen – Top of Control Box

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of 200 ug/ft².

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 ug/m³.
- No peeling paint was observed.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles (FC)	Recommended Lighting (FC)	Sufficient Lighting
Classroom Four	47.6	30-50	Yes
Lounge	32.8	10	Yes
Men's Bathroom	46.8	5	Yes
Drill Hall	43.6	30-50	Yes
Radio Vault	30.1	30	Yes
Dining Room	76.7	10	Yes
Kitchen	60.1	50	Yes
Recruiting Office	65.1	30-50	Yes
Men's Bathroom #2	56.1	5	Yes
Women's Bathroom	50.2	5	Yes
Homeland Response Office	47.6	30-50	Yes
Orderly Office	52.1	30-50	Yes
Armory Office	52.2	30-50	Yes
Conference Room	73.0	50	Yes
Training Office	93.7	30-50	Yes
S-2 Office	66.5	30-50	Yes
119 th S-1 Office	50.1	30-50	Yes
Copy Room	80.4	10	Yes
Detached Garage/Storage	20.2	30	No

Table Notes:

1. FC = Foot Candles
2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did not meet the minimum recommended guideline in the Detached Garage/Storage Area. Lighting should be improved in this area.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 8554 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation and Recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Radio Vault	63.7	13.0	647	0.4
Dining Room	61.7	8.7	517	0.7
Kitchen	59.2	7.1	403	0.6
Recruiting Office	68.5	10.0	625	0.0
Orderly Office	71.4	7.4	565	0.0
Conference Room	72.3	7.0	549	0.1
Training Office	73.4	8.0	656	0.1
S-2 Office	74.5	7.7	599	0.1
119 th S-1 Office	73.8	8.0	638	0.3
Copy Room	61.1	8.8	381	0.0
Detached Garage	33.1	20.1	313	0.0
Outdoors	30.7	24.5	297	0.0
Criteria	68-79	30-60	<997	<9

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **(%)** = percent relative humidity
4. **F** = degrees Fahrenheit

Source: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010 & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature levels were below recommended guideline in five sampled locations. For comfort, we recommend that the temperature levels be maintained within the ASHRAE recommended guideline of 68-79 degrees F during occupied periods.
- Relative humidity measurements were below the recommended guideline in all locations sampled. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Maintain relative humidity at 30-60%.
- Carbon dioxide levels measured did not exceed the recommended ceiling of 997 parts per million (ppm). This indicates that outdoor air ventilation is adequate in sampled areas. The recommended ceiling for carbon dioxide of 997 ppm is obtained by adding 700 ppm to the outdoor measured level (297 ppm) of carbon dioxide in this survey.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling in this survey of 9 ppm is based on the National Ambient Air Quality Standard of 9 ppm.
- A visual inspection was conducted throughout visually accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - This facility has ongoing roof leaks most notably in the drill hall and office wing of the building.
 - There were many water stained, damaged or missing ceiling tiles due to roof leaks.

Identify and repair the sources of the water infiltration. Replace any water stained ceiling tiles.

Section 6.0 Ventilation Survey

There is a three bay detached garage at this facility. It is used primarily for storage. There is no regular vehicle maintenance performed in this area.

There are a total of three above floor exhausts located in the garage of the Cherry Hill Readiness Center. All measurements were conducted at the face of each exhaust using a Velocicalc Plus Model 9555-P. Measurements were compared to the ACGIH Industrial Ventilation Manual requirements for above floor exhaust systems. The table below details measurement findings.

ABOVE FLOOR EXHAUST VENTILATION RATE SUMMARY

Location	Type of Hood	Exhaust Diameter	Measured Flow Rate (CFM)
Exhaust 1	Above Floor	6.75"	121
Exhaust 2	Above Floor	6.75"	124
Exhaust 3	Above Floor	6.75"	125

Reference: Industrial Ventilation, A Manual of Recommended Practice for Design, 27th Edition, ACGIH.

EXAMPLES OF VEHICLE LEV SYSTEM REQUIREMENTS

Vehicle Nomenclature	Tailpipe Temp. (°F)	Engine Displacement (ft3)	Engine RPMs*	Exhaust Flow † (CFM)
M35A2, 2.5 Ton Cargo Truck	300	0.277	2,500	1,192
M1008 CUCV, SUV	267	0.219	3,800	1,370
M923A2, 5 Ton Cargo Truck	300	0.293	1,700	857
M996 HMMWV, All Terrain Vehicle	297	0.219	3,300	1,294

* Revolutions per Minute

† Includes 20% Safety Factor

The actual flow rate that is required in an overhead vehicle exhaust system varies depending on the engine tail pipe temperature, whether or not the vehicle is "under load" or idling, engine displacement, engine size, etc. As an example, a 15 Liter Engine running at 1,000 rpm with an exhaust gas temperature of 1,300 F (heavy load) would require an exhaust flow of 2,110 CFM. If vehicle maintenance is performed at this facility we recommend the vehicle exhaust system be utilized. Based on this evaluation the flow rate currently provided does not meet the minimum recommended flow rate for even the smallest of military vehicles. Action should be taken to improve the flow rates of this system to meet the minimum requirements as recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) Industrial Ventilation: A Manual of Recommended Practice for Design (27th Edition).

Section 7.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1952) asbestos-containing materials (ACM) could be present in the facility. The following suspect asbestos-containing materials were noted to be present. All materials were found to be intact and in good condition. Inaccessible or hidden areas were not inspected.

1. Pipe insulation above the drop ceiling throughout the facility.
2. Approximately 100 ft² of 9"X9" red floor tile and associated mastic in the lounge bar area and hallway closet.
3. Mudded joint fittings throughout the facility and the detached garage.

Section 8.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	K98364	4/2012	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
TSI Velocicalc Plus	0733030	8/2012	NA
SKC Air Sampling Pump	647610	1/25/13	2.51 LPM
SKC Air Sampling Pump	647631	1/25/13	2.54 LPM

Section 9.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	NJ	Chain Of Custody:	515066
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Cherry Hill RC	Date Submitted:	1/30/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	2/5/2013
Attention:	Non-Responsive			Report Date:	2/6/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13033976	1	Flame	Air	552	N/A	5.4 ug/m ³	<3	<5.4 ug/m ³	
13033977	2	Flame	Air	559	N/A	5.4 ug/m ³	<3	<5.4 ug/m ³	
13033978	3	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033979	4	Flame	Wipe	****	0.108	110 ug/ft ²	55	510 ug/ft ²	
13033980	5	Flame	Wipe	****	0.108	110 ug/ft ²	23	210 ug/ft ²	
13033981	6	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033982	7	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033983	8	Flame	Wipe	****	0.108	110 ug/ft ²	14	130 ug/ft ²	
13033984	9	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033985	10	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033986	11	Flame	Wipe	****	0.108	110 ug/ft ²	23	220 ug/ft ²	
13033987	12	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033988	13	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033989	14	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033990	15	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033991	16	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033992	17	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033993	18	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13033994	19	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: NJ
Job Location: Cherry Hill RC
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 515066
Date Submitted: 1/30/2013
Person Submitting: Non-Responsive
Date Analyzed: 2/5/2013 Report Date: 2/6/2013

Attention: Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13033995	20	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13033996	21	Flame	Wipe	****	0.108	110 ug/ft²	13	120 ug/ft²	
13033997	22	Flame	Wipe Blank	****	N/A	12 ug		<12 ug	
13033998	23	Flame	Air Blank	0	N/A	3 ug/m³		<3 ug	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst:

Non-Responsive

Technical Manager

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

**AMA Analytical Services, Inc.**

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AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

515066

page 1 of 2

Mailing/Billing Information:

- Client Name: National Guard Bureau
- Address 1: 301-JH Old Bay Lane
- Address 2: Attn: NGB-ARS-JHNE
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- Job Name: NJ
- Job Location: Cherry Hill RC
- Job #: W912K6-09-A-0003
- Contact Person: Non-Responsive @ Non-Responsive
- Submitted Date: Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: <u>2/6/13</u> <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)		REPORT TO: <input checked="" type="checkbox"/> Include with Report <input type="checkbox"/> Email <u>complaint@ace.army.mil</u> <input type="checkbox"/> Fax: <u>us.army.mil</u> <input type="checkbox"/> Verbal <u>us.army.mil</u>
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Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐
- NIOSH 7400 (QTY) _____
-
- ☐
- Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY) _____
-
- ☐
- NIOSH 7402 (QTY) _____
-
- ☐
- Other (specify) _____ (QTY) _____

PLM Bulk

- ☐
- EPA 600 - Visual Estimate (QTY) _____
-
- ☐
- EPA Point Count (QTY) _____
-
- ☐
- NY State Friable 198.1 (QTY) _____
-
- ☐
- Grav. Reduction ELAP 198.6 (QTY) _____
-
- ☐
- Other (specify) _____ (QTY) _____

MISC

- ☐
- Vermiculite
-
- ☐
- Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐
- ELAP 198.4/Chatfield (QTY) _____
-
- ☐
- NY State PLM/TEM (QTY) _____
-
- ☐
- Residual Ash (QTY) _____

TEM Dust

- ☐
- Qual. (pres/abs) Vacuum/Dust (QTY) _____
-
- ☐
- Quan. (s/area) Vacuum D5755-95 (QTY) _____
-
- ☐
- Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

- ☐
- Qual. (pres/abs) (QTY) _____
-
- ☐
- ELAP 198.2/EPA 100.2 (QTY) _____
-
- ☐
- EPA 100.1 (QTY) _____

☒ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)
Metals Analysis

- ☐
- Pb Paint Chip (QTY) _____
-
- ☐
- Pb Dust Wipe (wipe type
- Ghost
-)
- 20
- (QTY) _____
-
- ☐
- Pb Air
- 3
- (QTY) _____
-
- ☐
- Pb Soil/Solid (QTY) _____
-
- ☐
- Pb TCLP (QTY) _____
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY) _____
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY) _____
-
- ☐
- Pb Furnace (Media) (QTY) _____

Fungal Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) _____ ☐ Surface Vacuum Dust (QTY) _____
☐ Surface Swab (QTY) _____ ☐ Culturable ID Genus (Media) (QTY) _____
☐ Surface Tape (QTY) _____ ☐ Culturable ID Species (Media) (QTY) _____
☐ Other (Specify) _____ (QTY) _____

SAMPLE INFORMATION**ANALYSIS****CLIENT CONTACT**

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
1. Drill Hall		1-25	552					X											
2. Firing Range			559					X											
3. Firing Range - floor				100cm				X											
4. Firing Range exhaust fan								X											
5. Firing Range - locker								X											
6. Drill Hall - floor								X											
7. Drill Hall water fountain								X											
8. Drill Hall - floor by Range								X											
9. Drill Hall - AED Box								X											
10. Kitchen - Paper Towel Dispenser								X											
11. Kitchen - Top of Control Box								X											
12. J-1 office - Book Shelf								X											

LABORATORY
 Posted to NGB FOIA Reading Room
 May 2018
 CHAIN OF CUSTODY
1. Date/Time RCVD: 1/30/13 @ 1000 Via: Fedex By (Print): NGBM Sign: _____

2. Date/Time Analyzed: _____ @ _____

3. Results Reported To: _____ Via: _____ Date: _____

4. Comments: 945 034 9149

Sign: _____

FOIA Requested Record #J-15-0085 (NH)

Released by National Guard Bureau

Page 255 of 1660

**AMA Analytical Services, Inc.**

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CHAIN OF CUSTODY

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515066
 page 2 of 2

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4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name: 22J
2. Job Location: Cherry Hill
3. Job #: PO #: W912K6-09-A-0003
4. Contact Person: **Non-Responsive** @ phone # (410) 942-0273
5. Submitted by: **Non-Responsive** (Signature: **Non-Responsive**)

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Next Day <input type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: _____ <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REPORT TO: <input checked="" type="checkbox"/> Include COC/Field Data Sheets with Report <input checked="" type="checkbox"/> Email: Non-Responsive @us.army.mil <input type="checkbox"/> Fax: Non-Responsive @us.army.mil <input type="checkbox"/> Verbal: _____
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Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☐ EPA 600 - Visual Estimate (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield (QTY) _____
☐ NY State PLM/TEM (QTY) _____
☐ Residual Ash (QTY) _____

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)

Metals Analysis

- ☐ Pb Paint Chip (QTY) _____
☐ Pb Dust Wipe (wipe type _____) (QTY) _____
☐ Pb Air (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____

Fungal Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) _____ ☐ Surface Vacuum Dust (QTY) _____
☐ Surface Swab (QTY) _____ ☐ Culturable ID Genus (Media _____) (QTY) _____
☐ Surface Tape (QTY) _____ ☐ Culturable ID Species (Media _____) (QTY) _____
☐ Other (Specify _____) (QTY) _____

CLIENT ID NUMBER	SAMPLE INFORMATION		VOLUME (LITERS)	WIPE AREA	ANALYSIS										CLIENT CONTACT				
	SAMPLE LOCATION/ IDENTIFICATION	DATE			TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	(LABORATORY STAFF ONLY)		
13	Armory office - Book shelf	1-25		100-m ²				X									Date/Time:	Contact:	By:
14	MAIL ROOM - file cabinet																		
15	Orderly office - table																		
16	Recruiting office - Election box																		
17	5-3 office - Desk																Date/Time:	Contact:	By:
18	Dining Room - table																		
19	Radio Vault - metal Rack																		
20	Lounge - A.V. CART																		
21	Detached Garage																Date/Time:	Contact:	By:
22	Blank			0															
23	Air		0																
24																			

LABORATORY

Posted to NGB FOIA Reading Room
 May 2018
 (CUSTODY)

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____
2. Date/Time Analyzed: _____ / _____ / _____ @ _____
3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____
4. Comments: _____

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FOIA Requested Record #J-15-0085 (NH)

Released by National Guard Bureau

Page 256 of 1660

Appendix B. Photographs



Exterior of facility



Exterior of detached garage/storage



Inside detached garage/storage with overhead vehicle exhaust system



Main hallway water damage from roof leaks and suspect asbestos pipe insulation above ceiling tiles



Suspect mudded joint fittings throughout the facility

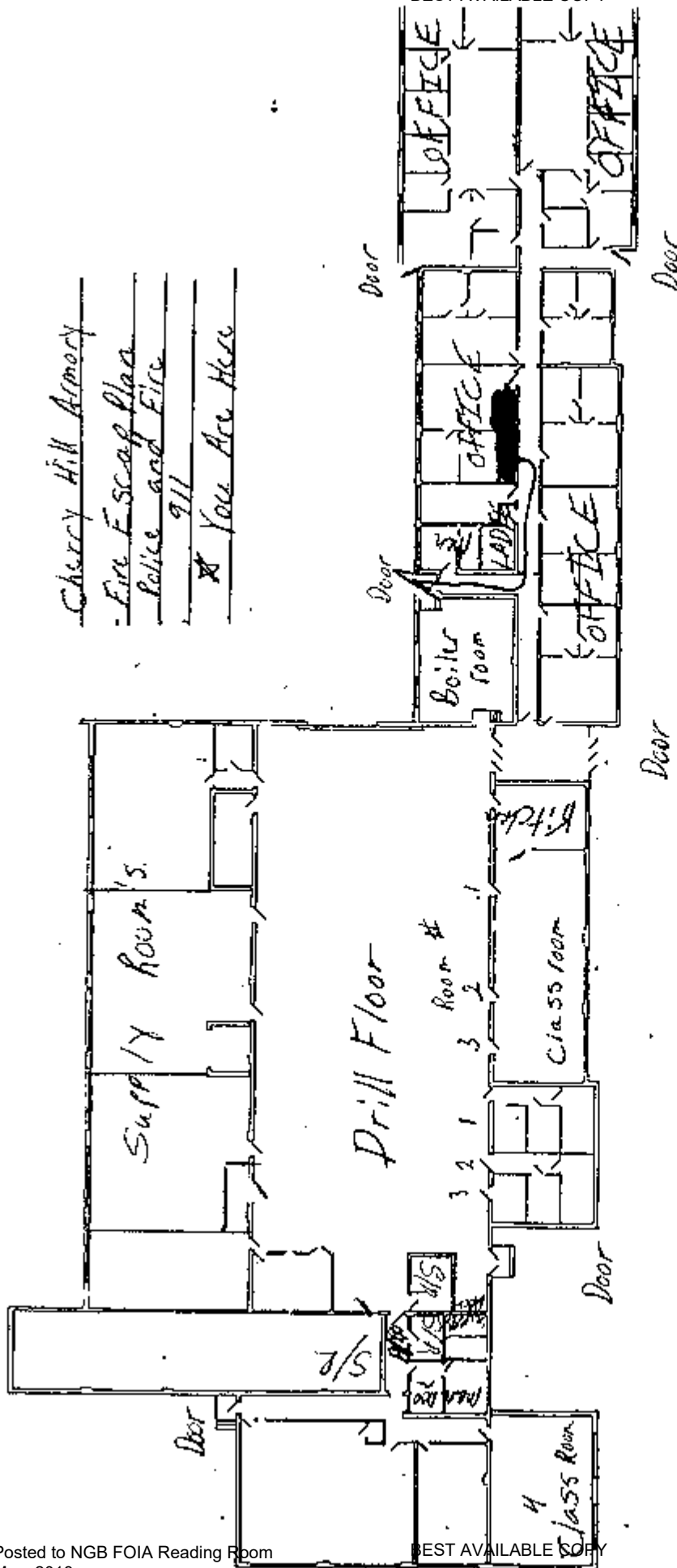


Boiler room water damage from roof leaks



Drill hall

Appendix C. Floor Plan



NEW JERSEY DEPARTMENT OF MILITARY AND VETERANS' AFFAIRS * ENGINEERING			
PROJECT TITLE	SCALE	DRAWN BY	
FLOOR PLAN		DATE	
		CHECKED BY	
		APPROVED BY	

FLOOR PLAN

SCALE: 1/8" = 1'-0"

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead.
2. American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2012 Edition.
3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition.
4. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Ventilation for Acceptable Indoor Air Quality, 62.1-2010.
5. ANSI/IESNA RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America.
6. ANSI/IESNA RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America.
7. National Emission Standard Hazardous Air Pollutants (NESHAP) – The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
8. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)].
9. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM), 1999.
10. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, Feb 2002.
11. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 2006.
12. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Jersey 03079

**INDUSTRIAL HYGIENE SURVEY REPORT
FLEMINGTON ARMORY
FLEMINGTON, NEW JERSEY**

January 2006
PN: 39741509

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA.....	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead.....	4
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS.....	5
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	5
2.6 INTERPRETATION OF RESULTS.....	5
3.0 FORMER INDOOR FIRING RANGE.....	7
3.1 OPERATION DESCRIPTION.....	7
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	7
3.2.1 Lead.....	7
3.3 VENTILATION SYSTEM EVALUATION	7
3.4 NOISE MEASUREMENTS.....	7
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	7
3.6 INTERPRETATION OF RESULTS.....	8
4.0 DRILL HALL	9
4.1 OPERATION DESCRIPTION.....	9
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
4.2.1 Lead.....	9
4.3 VENTILATION SYSTEM EVALUATION	9
4.4 NOISE MEASUREMENTS.....	9
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	9
4.6 INTERPRETATION OF RESULTS.....	10
5.0 BOILER ROOM	11
5.1 OPERATION DESCRIPTION.....	11
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	11
5.3 VENTILATION SYSTEM EVALUATION	11
5.4 NOISE MEASUREMENTS.....	11
5.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
5.6 INTERPRETATION OF RESULTS.....	11
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	12
6.1 CONFINED SPACES	12
6.2 HEARING CONSERVATION	12

TABLE OF CONTENTS (CONT)

6.3	RESPIRATORY PROTECTION	12
6.4	HAZARD COMMUNICATION.....	12
6.5	PERSONAL PROTECTIVE EQUIPMENT.....	12
7.0	REFERENCES	13

APPENDICES

Appendix A Armory Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Lead Dust in Armories

Appendix H Policy and Responsibilities for Inspection, Evaluation and Operation of
Army National Guard Indoor Firing Ranges (National Guard Regulation
385-15 30 December 2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting		
On the day of the survey, the illumination in several of the administrative offices was inadequate.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the facility in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
Asbestos		
A site-specific asbestos operations and maintenance plan was available. No warning labels in janitorial or maintenance areas.	Maintain a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3
Hazard Communication		
A site specific hazard communication plan available.	Implement the site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Fire Safety		
An obstructed fire extinguisher was found in the administrative area.	Fire extinguishers must be made available when needed and that employees are not subjected to injury hazards when they try to obtain an extinguisher (OSHA 29 CFR 1910.157(c)(1)).	RAC 2

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Flemington Armory located at State Highway 12 in Flemington, New Jersey. This report includes an executive summary and a description of the site activities and findings and a list of conclusions and recommendations.

On April 16, 2004, Ms. [Non-Responsive] an industrial hygienist with URS, conducted a site visit to the Armory in Flemington, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Armorer [Non-Responsive] of the New Jersey ARNG was Ms. [Non-Responsive] site contact for this survey.

This armory is a one story brick building, with an attached drill hall that is constructed primarily of brick and mortar. This facility is built on a concrete slab with a flat asphalt roof. An armory layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Some computer workstation chairs could not be adjusted for height and keyboards in offices could not be adjusted. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person. No complaints were received by URS concerning workstations at the time of this survey.

Cleaning supplies were observed in the Chemical Storage Room with hazardous communications data. Right to Know Center was observed on a desk.

2.2 Chemical and Physical Agents Sampled

On the day of the survey, relative humidity, carbon dioxide and carbon monoxide measurements were made in boiler room, drill floor, firing range orderly room, armorer's room and outside. These readings were all measured using a TSI Q-Trak™ (Model 8551). No indoor air quality complaints were received during this survey.

2.2.1 Relative Humidity

Relative humidity on the day of the survey ranged from 36-38 % throughout the various building areas with an average of 37%. The average reading was within the recommended comfort range of 30.0% to 60.0% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

Carbon dioxide concentrations ranged from a low of 758 to a spike of 983 parts per million (ppm), with an average of 870.5 ppm. The outside reading was 405 ppm.

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 405 ppm on the day of the survey, the suggested ASHRAE limit would be 1,105 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide concentrations ranged from 0 to 0.6 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline (62.1-2004) for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments may include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

2.2.4 Lighting

Lighting in the administrative areas was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting Footcandles	Recommended Lighting Footcandles
Supply Room (cages)	Warehouse	24	10
Supply Room Office	Administrative Duties	73	50
Kitchen Storage	Warehouse	21	10
Classroom/Break room	Administrative Duties	19	50
Admin Office	Administrative Duties	41	50
Admin Office #1	Administrative Duties	78	50
Admin Office #2	Administrative Duties	46	50
Classroom #2	Administrative Duties	36	50
Office #3	Administrative Duties	32	50

On the day of the survey, lighting levels were inadequate in several of the offices.

2.2.5 Lead

Wipe testing for lead was conducted throughout the facility using Ghost Wipes™, which meet ASTM E 1792 standards. One Surface within the administrative areas was found to contain lead dust levels, which exceeded the maximum limit. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 2-2 below shows the results of the lead sampling.

Table 2-2
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped	Result (µg/ft²)	Maximum Surface Contamination Level (µg/ft²)
Admin Office (Shelf)	WS-1	16 in²	19	200
Storage (Electric Panel)	WS-2	16 in²	160	200
Kitchen Storage (Shelf)	WS-3	16 in²	15	200
Supply (Cabinet)	WS-4	16 in²	15	200
Classroom #2 (Sill)	RWS-1	16 in²	41	200
Scullery (Floor)	RWS-2	16 in²	220	200
Lobby (Floor)	RWS-5	16 in²	25	200

Sample numbers and locations can be found on the site map in appendix A.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits were well marked and easily accessible. Fire extinguishers were observed blocked during the site visit.

ERGONOMICS: The ergonomic issues were minor with the desks, chairs and monitors but should be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey the illumination in the administrative area was inadequate in most offices. URS recommends increasing the area lighting or supplement task lighting for each workstation in the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: One dust wipe samples collected from the administrative area was above 200 micrograms/ square foot. This is the level recommended by the region north Industrial Hygiene office (Appendix G). Currently, there are no federal or state regulations that require removal of these materials prior to building demolition or renovation. The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

HAZARD COMMUNICATION: Listed containers of cleaning supplies were observed in the chemical storage room with MSDS forms located on site in the desktop guide. Right To Know Center should be affixed to a wall.

3.0 FORMER INDOOR FIRING RANGE

3.1 Operation Description

The former indoor firing range is currently used as a classroom. The bullet trap and firing lanes are still present. During the site visit, the former firing range was being set up for a book sale.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former indoor firing range using Ghost Wipes™, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

Table 3-1
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Former Shooting Bay	FR-1	16 in ²	1600	200
Floor	FR-2	16 in ²	420	200
Floor	FR-3	16 in ²	720	200
Former Bullet Trap	FR-4	16 in ²	5200	200
Former Target Hanger	FR-5	16 in ²	1700	200

Sample numbers and locations can be found on the site map in appendix A.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: Lead wipe sampling was performed in this area. Results indicated elevated levels of lead in dust on the floor and bullet trap. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Guidance for the cleanup and rehabilitation of former indoor firing ranges is provided on Appendix H

4.1 Operation Description

4.2 Chemical and Physical Agents Sampled

Wipe testing for lead dust was conducted in the drill hall using Ghost Wipes™, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

Sample Location	URS Sample Number	Area Wiped	Result (µg/ft²)	Maximum Surface Contamination Level (µg/ft²)
Drill Floor (Floor)	RWS-3	16 in²	120	200
Drill Floor (Floor)	RWS-4	16 in²	51	200

4.3 Ventilation System Evaluation

4.4 Noise Measurements

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: Wipe samples collected from Drill Hall floor for lead were found to be below allowable limits. No further action is required at this time. The NGB has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

No chemical or physical agents were sampled in this area.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

Not applicable to this operation.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A program was found regarding hazard communication. Training records were not found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 55-2004: Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities for Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

January 27, 2006

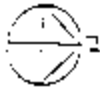
PN: 39741509; J1 Army National Guard\39741509; Flemington, NJ\Reports\Flemington Report Final.doc

URS

13

APPENDIX A
ARMORY DRAWING

"CHILDREN BEING EXHAUSTED WITH
FAM & GRUEL LOCATED



APPENDIX B
PERSONNEL LIST

**PERSONEL LIST
FLEMINGTON ARMORY**

Non-Responsive	Name	Rank
		CPT
		SFC
		SFC
		SGT
		PFC
		CIV - Armorer

APPENDIX C
HAZARDOUS MATERIALS LIST

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NOT PROVIDED

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301 IH Old Bay Lane, Attn: NGB-AVN-SL, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Artillery
Job Location: Flemington, NJ
Chain Of Custody: 128477
Date Analyzed: 6/28/2004
Permea Submitting: [Redacted]
Report Date: 28-Jun-04

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0449058	WS-1	Furnace	Wipe	***	0.111	2.70 ug/ft²	19 ug/ft²	
0449059	WS-2	Furnace	Wipe	***	0.111	67.51 ug/ft²	160 ug/ft²	
0449060	WS-3	Furnace	Wipe	***	0.111	2.70 ug/ft²	15 ug/ft²	
0449061	WS-4	Furnace	Wipe	***	0.111	2.70 ug/ft²	15 ug/ft²	
0449062	RWS-1	Furnace	Wipe	***	0.111	13.50 ug/ft²	41 ug/ft²	
0449063	RWS-2	Furnace	Wipe	***	0.111	67.51 ug/ft²	220 ug/ft²	
0449064	RWS-3	Furnace	Wipe	***	0.111	33.75 ug/ft²	120 ug/ft²	
0449065	RWS-4	Furnace	Wipe	***	0.111	13.50 ug/ft²	51 ug/ft²	
0449066	RWS-5	Furnace	Wipe	***	0.111	2.70 ug/ft²	25 ug/ft²	
0449067	FR-1	Flame	Wipe	***	0.111	108.01 ug/ft²	1600 ug/ft²	
0449068	FR-2	Flame	Wipe	***	0.111	108.01 ug/ft²	420 ug/ft²	
0449069	FR-3	Flame	Wipe	***	0.111	108.01 ug/ft²	720 ug/ft²	
0449070	FR-4	Flame	Wipe	***	0.111	108.01 ug/ft²	5200 ug/ft²	
0449071	FR-5	Flame	Wipe	***	0.111	108.01 ug/ft²	1700 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, the report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from the Laboratories. Sample types, locations and collection methods are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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An AIHA (08863), NVLAP (#101143), & New York ELAP (#10920) Accredited Laboratory
4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

Client: National Guard Bureau
Address: 301-H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Ammunition
Job Location: Flemington, NJ
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128477
Date Analyzed: 6/28/2004
Person Submitting: [Redacted]
Report Date: 28-Jun-04

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
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Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-311B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-311B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight ug/L = parts per million (ppm)
ppb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Non-Responsive

Technical Manager:

Analyst

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APPENDIX E
TRAINING CERTIFICATES

Certificate of Training

Non-Responsive

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

JULY 17, 2003

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies

RCSA 20 - 44b - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

ABIRF10892

Exam Grade: 97%

Exam Date: 07/17/2003

Evaluation Date: 07/17/2004

Non-Responsive

H, CSP, RS

Training Director

APPENDIX F
PHOTOGRAPHS



Photo 2:
Chemical Storage



Photo 4:
Unobstructed Fire Extinguisher



Photo 1:
Chemical Storage



Photo 3:
Obstructed Electric Panel

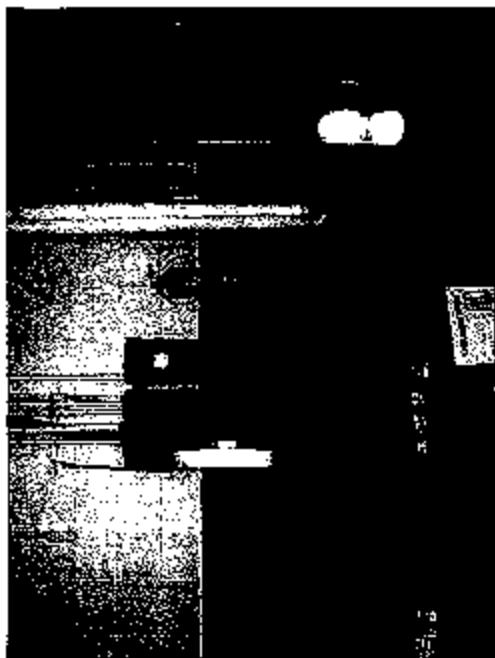


Photo 6:
Obstructed Fire Extinguishers



Photo 8:
Drill Floor Layout

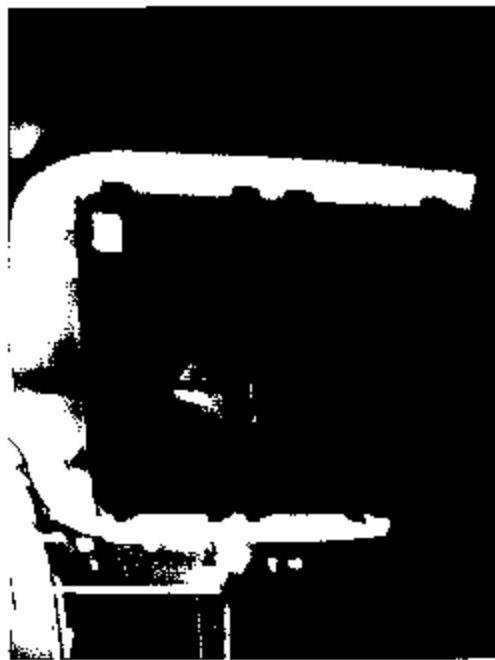


Photo 5:
Boiler

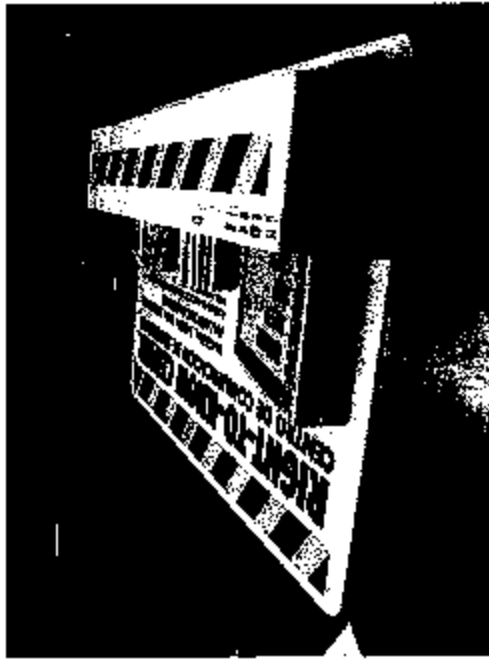


Photo 7:
"Right to Know" Center laying on Table



Photo 10:
Former Firing Range-Bays

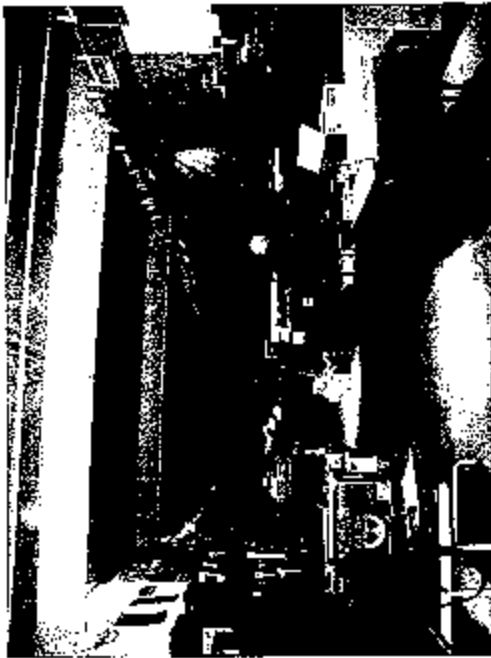


Photo 9:
Former Firing Range



Photo 11:
Exterior

APPENDIX G
RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

- a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).
- b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.
- c. Post signs in the area to inform people of the presence of lead dust and its effects.
- d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.
- e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15 30, DECEMBER 2002)

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

ADDENDUM**GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING****CONTENTS (Listed by paragraph number)**

	Paragraph
Purpose	1
References	2
Explanation of Abbreviations and Terms	3
Policy and Procedures	4
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	16
Range Rehabilitation	17
Conversion of Indoor Firing Ranges	18
Deviation	19

Appendices

- Appendix A - General Procedures for Collecting Wipe Samples
- Appendix B - Sampling Strategy for Collection of Wipe Samples
- Appendix C - Interpretation of Sample Results (Prior to Cleaning)
- Appendix D - Interpretation of Sample Results (After Cleaning)
- Appendix E - Recommended Sample Media and Containers
- Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results
- Appendix G - Surface Wipe Sample Sheet
- Appendix H - Air Sampling Sheet
- Appendix I - Glossary

Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
- e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 70-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

NGS-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are listed in the glossary.

4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

- a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.
- b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

- c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items. In so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same lot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of –

(a) Ghost Wipes™ (PREFERRED METHOD)– Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

~~Reference to cumulative lead exposure is not required.~~

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

(2) Unacceptable Media consists of but is not limited to—

(a) Cotton balls

(b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appendix A.

9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequency. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

c. **PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.**

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

l. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements.

A medical examination must include—

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- i. The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- (1) Protective coveralls with hood and shoe covers or disposable Tyvek™ full body suit.
- (2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
- (3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

NGB-AVS-SG**SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES**

- b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.
- c. Inspect Louvers, if applicable, to ensure they are opening fully.
- d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Bullet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.
- f. The range ventilation system will be operational during all bullet trap cleaning procedures.
- g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.
- h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

- a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.
- b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.
- c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

- a. All ranges slated for conversion will be inspected and evaluated.
- b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.
- c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.
- d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.
- e. Light fixtures and ventilation system grills must be removed and decontaminated.
- f. Ventilation system ducts need to be decontaminated or removed and replaced.
- g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.
- h. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Arlington, VA 22204-1382.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX A
GENERAL PROCEOURES FOR COLLECTING WIPE SAMPLES**

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

**APPENDIX B
SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES**

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

**APPENDIX C
INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)**

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

NGB-AVS-5G

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface. Regional Industrial Hygiene Office for specific guidance.

APPENDIX D**INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)**

O-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E**RECOMMENDED SAMPLE MEDIA AND CONTAINERS**

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0851 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3388M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc. Supelco Park Bellefonte, PA 16823	2-3381IM

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

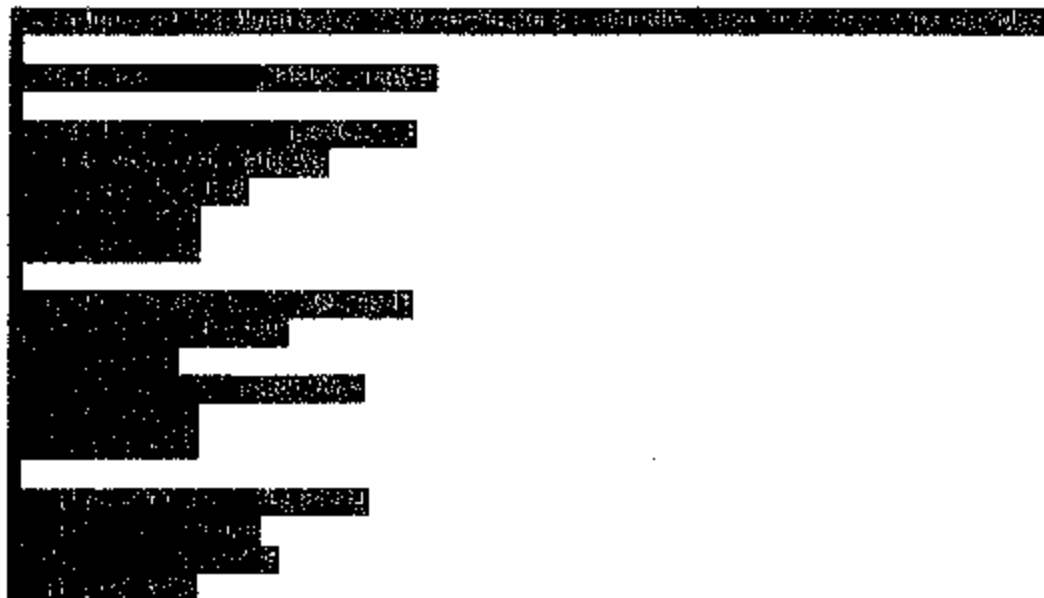
APPENDIX E (Continued)

800-247-8628

800-359-3041

- b. Millipore Corp. AAWP-037-00
Ashby Road
Bedford, MA 01730
617-275-9200
800-225-1380

- c. SKC, Inc. 225-5
334 Valley View Rd.
Eighty Four, PA 15330
412-941-9701
800-752-8472



E-5. Glass container (25 milliliter) for collection and shipment of media.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|---|-------------------|
| a. Pierce Chemical Co.
P.O. Box 117
Rockford, IL 61105
815-968-0747
800-874-3723 | 13219 (screw cap) |
| | |
| b. Alltech Associates, Inc.
Applied Science Labs
2051 Waukegan Rd.
Deerfield, IL 60015
312-948-8600 | 95321 (screw cap) |

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0076) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

Order From Catalog Number

Environmental Express SC4200
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

Environmental Express SC499
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Deionized water can be obtained at local and state water labs or a hospital.

APPENDIX F

EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}}$$

$$\frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX G
SURFACE WIPE SAMPLING SHEET**

Industrial Hygiene Surface Wipe Sample Sheet			
Return Address		Point of Contact (name & phone #)	
		Samples Collected By	
Sampled Facility	City	State	Location (bldg/area)
Description of Operation		Date Collected	Date Shipped
Analysis Desired			
Sampling Data			
Lab Use Only	Sample #	Results	Remarks
Comments to Lab:			

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility	City	State	Location (bldg/area)				
Description of Operation	___ Persons Exposed		___ Hrs/Day		Method of Collection		
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Data			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date	Pump Manufacturer				
Comments to Lab:							

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX I
ABBREVIATIONS AND TERMS**

**Section I
Abbreviations**

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX I (Continued)

**Section II
Terms**

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.



1215 Manor Drive, Suite 205
Mechanicsburg, PA 17055
Phone: 717.590.7031
Fax: 717.590.7936
www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility
Flemington Readiness Center

Prepared For: National Guard Bureau Region North IH
301-IH Old Bay Lane
Havre de Grace, MD 21078

Survey Location: Flemington Readiness Center
422 State Highway 12
Flemington, NJ, 08822-9511

Prepared By: Compliance Management International, Inc.
1215 Manor Drive
Suite 205
Mechanicsburg, PA 17055

Survey Date: February 26, 2013

Report Date: April 4, 2013

Non-Responsive

Senior Industrial Hygienist

Table of Contents

Section 1.0 Executive Summary	3
Section 2.0 Operation Description & Observations.....	4
Section 3.0 Lead Testing.....	5
Section 4.0 Lighting.....	7
Section 5.0 Indoor Air Quality.....	8
Section 6.0 Suspect Asbestos Containing Building Materials.....	10
Section 7.0 Equipment	11
Section 8.0 Limitations	12
Appendix A. Laboratory Analysis Report	13
Appendix B. Photographs	14
Appendix C. Floor Plan	15
Appendix D. References	16

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on February 26, 2013, at the Flemington Readiness Center located at 422 State Highway 12, Flemington, NJ 08822. The survey was performed by Mr. Non-Responsive.

1. Lead surface and air samples were collected. Surface levels of lead did not exceed 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). See Section 3.0 for sampling results.
2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in four locations. See Section 4.0 for detailed findings.
3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Relative humidity levels were less than the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 177 recommended guideline of 30-60% in all locations.
 - b. Temperature levels were below the ASHRAE recommended guideline of 68-79 degrees F in all locations.

See Section 5.0 for detailed sampling results

4. Several conditions or factors that could affect indoor air quality were observed at the time of this survey. This includes:
 - a. Reported roof leaks.
 - b. Some water damaged ceiling tiles were observed in several locations in the facility.

Section 2.0 Operation Description & Observations

The Flemington Readiness Center is mainly an administrative facility with a drill hall, offices, classroom, and converted firing range/storage areas. There were approximately 7 full-time employees stationed at this facility at the time of this survey.

The building was initially constructed in the 1951. Two additional additions were constructed during the 1960s and 1980s. The building is a single-story structure with a brick exterior. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, floor tile, and carpet.

The Heating, Ventilation, and Air-Conditioning (HVAC) system consists of an oil-fired forced water furnace for heat, and 3 roof-top units for air conditioning.

The area of the building that was once a firing range has been converted into a storage area. No firing range components remain.

There is no child-care facility in the building.

Overall housekeeping practices were adequate.

No ergonomic concerns were reported.

Section 3.0 Lead Testing

Due to the age of the building there is a high potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m ³	Surface ug/ft ²
1	Drill Hall	<7.5	*
2	Conference Room 118	<7.5	*
3	Blank	<3	*
4	Drill Hall Floor	*	<110
5	Drill Hall Amnesty Box	*	<110
6	Kitchen Stove Shelf	*	<110
7	Converted Firing Range – Floor	*	<110
8	Converted Firing Range – Table	*	<110
9	Outside Converted Firing Range - Floor	*	<110
10	Supply Room – Table	*	<110
11	Office 120 – Shelf	*	<110
12	Exercise Room – Heater	*	<110
13	Office 131 – Shelf	*	<110
14	Office 150 - Cabinet	*	<110
15	Conference Room 112 – TV Stand	*	<110
16	Office 112 – Supply Diffuser	*	<110
17	Blank	*	<12
-	Criteria	50	200

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **ug/ft²** = micrograms per square foot
4. **ug/m³** = micrograms per cubic meter
5. **ug** = micrograms

Sources:

1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft^2) as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of $40 \text{ ug}/\text{ft}^2$ on floors and $250 \text{ ug}/\text{ft}^2$ on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were below the recommended guideline of $200 \text{ ug}/\text{ft}^2$.
- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3).

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles (FC)	Recommended Lighting (FC)	Sufficient Lighting
Converted Firing Range - Storage	38.4	10	Yes
Supply Room	33.3	30	Yes
Food Services - Prep	9.0	50	No
Conference Room 118 - Meet	35.3	30	Yes
Office 120	64.4	30 - 50	Yes
Conference Room 112 – Meet, Front	7.8	30	No
Conference Room 112 – Meet, Rear	30.2	30	Yes
Exercise Room	36.7	30	Yes
Men's Toilet	22.2	5	Yes
Women's Toilet	34.4	5	Yes
Office 150	86.4	30 - 50	Yes
Office 607714	64.6	30 - 50	Yes
Office 131	84.2	30 - 50	Yes
Conference Room 130 - Meet	31.5	30	Yes
Office 152	51.8	30 - 50	Yes
Storage 115	15.7	10	Yes
Main Hall	14.2	5	Yes
HVAC	72.1	30	Yes
Electrical Room	24.5	30	No
Office 105	26.4	30 - 50	No
Weapons Vault	119.4	30	Yes

Table Notes:

1. FC = Foot Candles
2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did not meet the minimum recommended guideline in the food services preparation area, front half of conference room 112, electrical room, and office 105. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Office 120	63.5	26.4	843	0.0
Office 131	60.4	25.2	476	0.0
Outdoors	39.2	62.0	385	0.5
Criteria	68-79	30-60	<1,085	<9

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **(%)** = percent relative humidity
4. **F** = degrees Fahrenheit

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements were below the recommended 68°F in all areas. Relative humidity levels were outside the recommended guidelines in all sampled areas. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Relative humidity should be maintained at 30-60%.

- Carbon dioxide levels measured did not exceed the recommended ceiling of 1,085 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm.
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - It was reported that roof leaks had occurred in the past. Several water-stained ceiling tiles were observed in the facility. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.
 - Overall housekeeping was adequate.

Section 6.0 Suspect Asbestos Containing Building Materials

Due to the age of the facility (built in 1951) it is likely that asbestos-containing materials (ACM) are present in the facility. The following suspect ACM was noted at the time of this survey:

1. Floor tiles (9" x 9") and associated mastic are present in the Commander's Office and Executive Officer's Room. These appear intact and undamaged at time of this survey.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	K98364	4/2012	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	2/26/13	2.13 LPM
SKC Air Sampling Pump	647610	2/26/13	2.10 LPM

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	ARNG, 3KNJ	Chain Of Custody:	515232
Address:	301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Graco, Maryland 21078	Job Location:	Flemington, NJ	Date Submitted:	2/28/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	3/4/2013
Attention:	Non-Responsive			Report Date:	3/4/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13041135	1	Flame	Air	402	N/A	7.5 ug/m³	<3	<7.5 ug/m³	
13041136	2	Flame	Air	400	N/A	7.5 ug/m³	<3	<7.5 ug/m³	
13041137	3	Flame	Air Blank	0	N/A	3 ug/m³		<3 ug	
13041138	4	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041139	5	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041140	6	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041141	7	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041142	8	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041143	9	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041144	10	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041145	11	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041146	12	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041147	13	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041148	14	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041149	15	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041150	16	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13041151	17	Flame	Wipe Blank	****	N/A	12 ug		<12 ug	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	ARNG, 3KNJ	Chain Of Custody:	515232
Address:	301-IH Old Bay Lane, Attn: ARNG-CIG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Flemington, NJ	Date Submitted:	2/28/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	3/4/2013
Attention:	Non-Responsive			Report Date:	3/4/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Anal							Non-Responsive		
							Non-Responsive		
							Technical Manage		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

**AMA Analytical Services, Inc.**

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CHAIN OF CUSTODY(Please Refer To This
Number For Inquiries)

515232

P8142

Mailing/Billing Information:

- Client Name: National Guard Bureau
- Address 1: 301-JH Old Bay Lane
- Address 2: Attn: NGB-ARS-JHNE
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- ARNG 3XNJ
- Flemington NJ
- Job #: W912K8-09-A-0003
- Contact Person: **Non-Responsive** **Non-Responsive**
- Non-Responsive**

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		<input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Next Day <input type="checkbox"/> 2 Day <i>NDA</i>		<input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day + Date Due: <u>3/7/13</u>		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)		REPORT TO: <input checked="" type="checkbox"/> Include with Report <input checked="" type="checkbox"/> Non-Responsive <input type="checkbox"/> Fax: <u>compliance@aceface.com</u> <input type="checkbox"/> Verb: <u>us.army.mil</u>	
--	--	---	--	---	--	---	--	---	--

PCM Analysis

PCM Air - Please Indicate Filter Type:

- ☐
- NIOSH 7400 (QTY)
-
- ☐
- Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY)
-
- ☐
- NIOSH 7402 (QTY)
-
- ☐
- Other (specify) _____ (QTY)

PLM Bulk

- ☐
- EPA 600 - Visual Estimate (QTY)
-
- ☐
- EPA Point Count (QTY)
-
- ☐
- NY State Friable 198.1 (QTY)
-
- ☐
- Grav. Reduction ELAP 198.6 (QTY)
-
- ☐
- Other (specify) _____ (QTY)

MISC

- ☐
- Vermiculite
-
- ☐
- Asbestos Soil PLM (Qual) PLM (Qty) PLM/TEM (Qual) PLM/TEM (Qty)

TEM Bulk

- ☐
- ELAP 198.4/Chatfield (QTY)
-
- ☐
- NY State PLM/TEM (QTY)
-
- ☐
- Residual Ash (QTY)

TEM Dust

- ☐
- Qual. (pres/abs) Vacuum/Dust (QTY)
-
- ☐
- Quan. (s/area) Vacuum D5755-95 (QTY)
-
- ☐
- Quan. (s/area) Dust D6480-99 (QTY)

TEM Water

- ☐
- Qual. (pres/abs) (QTY)
-
- ☐
- ELAP 198.2/EPA 100.2 (QTY)
-
- ☐
- EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)
Wipes Analysis

- ☐
- Pb Paint Chip (QTY)
-
- ☒
- Pb Dust Wipe (wipe type
- CHOST
-)
- 14
- (QTY)
-
- ☒
- Pb Air
- 3
- (QTY)
-
- ☐
- Pb Soil/Solid (QTY)
-
- ☐
- Pb TCLP (QTY)
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Pb Furnace (Media) _____ (QTY)

Water Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
- Collection Media _____
- ☐
- Spore-Trap (QTY)
- ☐
- Surface Vacuum Dust (QTY)
-
- ☐
- Surface Swab (QTY)
- ☐
- Culturable ID Genus (Media) _____ (QTY)
-
- ☐
- Surface Tape (QTY)
- ☐
- Culturable ID Species (Media) _____ (QTY)
-
- ☐
- Other (Specify) _____ (QTY)

CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPES ARBA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	DATE/TIME	CONTACT	BY
1	DRILL HALL	2/26/13	400					X		X									
2	Conf. Room		400							X									
3	Blank									X									
4	DH Floor CTR			100cm ²															
5	DH Ammunition Box																		
6	K stove shelf																		
7	FR Floor																		
8	P-R Table																		
9	outside P-R Floor																		
10	SUP Room Table																		
11	OFFICE 120 shelf																		
12	Fitness Heater																		

LABORATORY**STAFF ONLY:**(Custom)
May, 2018

- Date/Time RCVD: 2/28/13 @ 0930 Via: FED EX By (Print): Chris Nicodemus Sign: Chris
- Date/Time Analyzed: _____ @ _____ By (Print): _____ Sign: _____
- Results Reported To: _____
- Comments: 7945 0135 0315

BEST AVAILABLE COPY

Date: _____ / _____ / _____

Form Requested Record # 15-0005 (NH)

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**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquiries)515232
Guard pg 2 of 2**Mailing/Billing Information:**

- Client Name: National Guard Bureau
- Address 1: 301-JH Old Bay Lane
- Address 2: Attn: NGB-ARS-JHNE
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- ARNG 3E NJ
- FLEMING TON, NJ
- Job #: P.O. #: W912K6-09-A-0003
- Contact Person: Non-Responsive @ phone # (410) 942-0273
- Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible):

<input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		<input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Next Day <input type="checkbox"/> 2 Day		<input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day + Date Due: _____		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REPORT TO: <input checked="" type="checkbox"/> Inc. with Report <input checked="" type="checkbox"/> Compliance Place.com <input type="checkbox"/> Fax <u>us.army.mil</u> <input type="checkbox"/> Ver <u>us.army.mil</u>	
--	--	--	--	---	--	--	--	---	--

Asbestos Analysis

- PCM Air** - Please Indicate Filter Type:
- ☐ NIOSH 7400 (QTY)
 - ☐ Fiberglass (QTY)
- TEM Air** - Please Indicate Filter Type:
- ☐ AHERA (QTY)
 - ☐ NIOSH 7402 (QTY)
 - ☐ Other (specify) (QTY)

- PLM Bulk**
- ☐ EPA 600 - Visual Estimate (QTY)
 - ☐ EPA Point Count (QTY)
 - ☐ NY State Friable 198.1 (QTY)
 - ☐ Grav. Reduction ELAP 198.6 (QTY)
 - ☐ Other (specify) (QTY)

- MISC**
- ☐ Vermiculite
 - ☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield (QTY)
- ☐ NY State PLM/TEM (QTY)
- ☐ Residual Ash (QTY)

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 (QTY)
- ☐ Quan. (s/area) Dust D6480-99 (QTY)

TEM Water

- ☐ Qual. (pres/abs) (QTY)
- ☐ ELAP 198.2/EPA 100.2 (QTY)
- ☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples °C)

Metals Analysis

- ☐ Pb Paint Chip (QTY)
- ☒ Pb Dust Wipe (wipe type 60405T) 14 (QTY)
- ☒ Pb Air 3 (QTY)
- ☐ Pb Soil/Solid (QTY)
- ☐ Pb TCLP (QTY)
- ☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
- ☐ Pb Furnace (Media) (QTY)

Microbiology

- Collection Apparatus for Spore Traps/Air Samples:
- Collection Media
- ☐ Spore-Trap (QTY)
 - ☐ Surface Vacuum Dust (QTY)
 - ☐ Surface Swab (QTY)
 - ☐ Culturable ID Genus (Media) (QTY)
 - ☐ Surface Tape (QTY)
 - ☐ Culturable ID Species (Media) (QTY)
 - ☐ Other (Specify) (QTY)

CLIENT CONTACT**(LABORATORY STAFF ONLY)**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	DATE/TIME	CONTACT	BY
13	OFFICE 131 SHELF	2/20/13		100cm ²				X											
14	OFFICE 150 CABINET																		
15	Room 112 TV STAND																		
16	Room 120. SUP. DIF																		
17	BLANK																		

LABORATORY**STAFF ONLY:**

Posted to NGB FOIA

May, 2018

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

3. Results Reported To: _____ BEST AVAILABLE COPY Date: _____ / _____ / _____

4. Comments: _____

FOIA Requested Record # 15-0085 (NH)

Released by National Guard Bureau

Appendix B. Photographs



Flemington Main Entrance



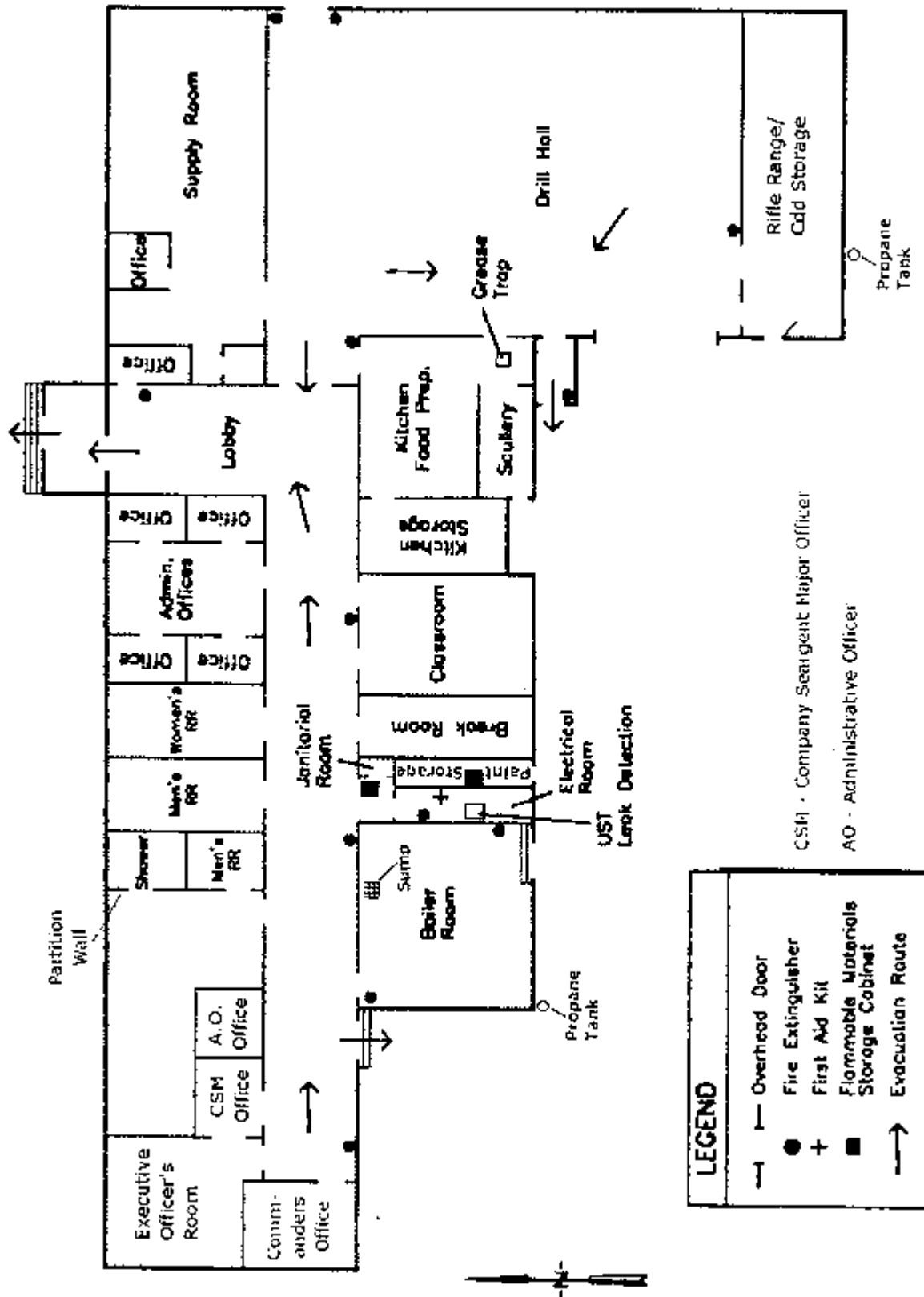
Classroom 112 Lights Disconnected in Front Half



Detached Maintenance Building

Appendix C. Floor Plan

Evacuation Map - Armory



Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead.
2. American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2011 Edition.
3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition.
4. American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010.
5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI.
6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI.
7. National Emission Standard Hazardous Air Pollutants (NESHAP) – The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
8. National Ambient Air Quality Standards (NAAQS) - National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)].
10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 NOV 06.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Jersey 03079

**FINAL
INDUSTRIAL HYGIENE SURVEY REPORT
FREEHOLD ARMORY
FREEHOLD, NEW JERSEY**

March 2006
PN: 39741509

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity	2
2.2.2 Carbon Dioxide	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	3
2.2.5 Lead	4
2.2.6 Asbestos	5
2.3 VENTILATION SYSTEM EVALUATION	5
2.4 NOISE MEASUREMENTS	6
2.5 PERSONAL PROTECTIVE EQUIPMENT	6
2.6 INTERPRETATION OF RESULTS	6
3.0 FORMER INDOOR FIRING RANGE	8
3.1 OPERATION DESCRIPTION	8
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	8
3.2.1 Lead	8
3.3 VENTILATION SYSTEM EVALUATION	9
3.4 NOISE MEASUREMENTS	9
3.5 PERSONAL PROTECTIVE EQUIPMENT	9
3.6 INTERPRETATION OF RESULTS	9
4.0 DRILL HALL	10
4.1 OPERATION DESCRIPTION	10
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	10
4.2.1 Lead	10
4.2.2 Asbestos	10
4.3 VENTILATION SYSTEM EVALUATION	11
4.4 NOISE MEASUREMENTS	11
4.5 PERSONAL PROTECTIVE EQUIPMENT	11
4.6 INTERPRETATION OF RESULTS	11
5.0 BOILER ROOM	12
5.1 OPERATION DESCRIPTION	12
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	12
5.2.1 Asbestos	12
5.3 VENTILATION SYSTEM EVALUATION	12
5.4 NOISE MEASUREMENTS	12
5.5 PERSONAL PROTECTIVE EQUIPMENT	12
5.6 INTERPRETATION OF RESULTS	12
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	13
6.1 CONFINED SPACES	13
6.2 HEARING CONSERVATION	13
6.3 RESPIRATORY PROTECTION	13
6.4 HAZARD COMMUNICATION	13
6.5 PERSONAL PROTECTIVE EQUIPMENT	13
7.0 REFERENCES	14

TABLE OF CONTENTS (Cont)

APPENDICES

Appendix A Armory Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Lead Dust in Armories

Appendix H Policy and Responsibilities For Inspection, Evaluation and Operation of
Army National Guard Indoor Firing Ranges (National Guard Regulation
385-15, 30 December 2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations were observed with fixed keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting		
On the day of the survey, the illumination in the administrative offices and foyer was adequate in most circumstances.	Maintain lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the facility in amounts greater than 200 µg/ft ²	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
Asbestos		
Exposed asbestos-containing pipe fitting insulation was present in the boiler room.	Repair or remove exposed ends or damaged asbestos-containing pipe insulation. Work should be completed by personnel trained in accordance with federal regulations (OSHA 29 CFR 1910.1001)	RAC 3

FINDINGS AND RECOMMENDATIONS (Cont)

Findings	Recommendation	Risk Assessment Code
Asbestos		
A site-specific asbestos operations and maintenance plan was available during site visit. No warning labels in janitorial or maintenance areas.	Develop or maintain a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3
Hazard Communication		
Secondary containers in the Armorer's Supply were not labeled	Label all secondary containers unless intended for immediate use (OSHA 1910.1200)	RAC 4
No site specific hazard communication plan was available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200)	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Bureau, URS Corporation (URS) conducted an industrial hygiene survey at the Armory located at 635 Park Avenue (State Highway 33) in Freehold, New Jersey 07728. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On April 20, 2004, Ms. [Non-Responsive] an industrial hygienist with URS, conducted a site visit to the Armory in Freehold, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of bulk samples, lighting measurements, and a review of site health and safety procedures. Sgt. [Non-Responsive] of the New Jersey ARNG was Ms. [Non-Responsive] site contact for this survey.

An armory layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer monitors and keyboards could not be adjusted for different individuals working at the work stations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

No complaints were received by URS concerning workstations at the time of this survey.

Unlabeled secondary containers were observed in the Armorer's Supply (Photo # 4). MSDS sheets were not found on site.

2.2 Chemical and Physical Agents Sampled

On the day of the survey, relative humidity, carbon dioxide and carbon monoxide measurements were made in the Main Hall, Hall outside the Garage, and the Drill Floor, and outside. These readings were all measured using a TSI Q-Trak TM (Model 8551). No indoor air quality complaints were received during this survey.

2.2.1 Relative Humidity

Relative humidity on the day of the survey ranged from 40-56 % throughout the various building areas with an average of 48%. This average reading was below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

Carbon dioxide concentrations ranged from a low of from 638 to a spike of 766 parts per million (ppm), with an average of 696 ppm. The outside reading was 397 ppm.

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE (62.1-2004) recommends that levels of carbon dioxide be maintained below 700 ppm above background level. Given a background level of 397 ppm on the day of the survey, the ASHRAE limit would be 1,097 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide concentrations ranged from 0.2 to 1.4 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments may include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

2.2.4 Lighting

Lighting in the administrative areas was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the

recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting foot candles	Recommended Lighting foot candles
Co D Office #1	Administrative Duties	74	50
Co D Office #2	Administrative Duties	70	50
Co D Office #3	Administrative Duties	105	50
Co D Office #4	Administrative Duties	82	50
Co D Office #5	Administrative Duties	60	50
Co B Office #2	Administrative Duties	99	50
Co B Office #3	Administrative Duties	91	50
Co B Office #5	Administrative Duties	68	50
Recruiter's Office	Administrative Duties	61	50
Copy Room	Work Area-General	65	30
Classroom	Work Area	124	30
Classroom #15	Work Area	86	30
Classroom #16	Work Area	126	30
Office #22	Administrative Duties	66	50
Armorer's Supply	Warehouse	39	10
Co D Supply	Warehouse	11.3	10
Family Readiness Center	Administrative Duties	50	50
Motor Pool	Parking Area	2	3

On the day of the survey the illuminance in the administrative area was adequate in most offices.

2.2.5 Lead

Wipe testing for lead was conducted in the administration areas using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 2-2 below shows the results of the lead wipe sampling.

Table 2-2
Levels of Lead Dust Found in the Administration Area

Sample Location	URS Sample Number	Area Wiped	Result ($\mu\text{g}/\text{ft}^2$)	Maximum Surface Contamination Level ($\mu\text{g}/\text{ft}^2$)
D Co. Supply (shelf)	WS-1	16in ²	260	200
Maintenance Room (shelf)	WS-2	16in ²	51	200
B Co. Supply (floor)	WS-3	16in ²	2700	200
Family Readiness Office (floor)	WS-4	16in ²	22	200
Kitchen Storage (floor)	WS-5	16in ²	71	200
D Co. Office #5 (sill)	WS-7	16in ²	77	200
B Co. Office #5 (sill)	WS-8	16in ²	26	200
Recruiter's Office (floor)	WS-9	16in ²	480	200
Classroom #16 (sill)	WS-10	16in ²	35	200
Garage (floor)	RWS-01	16in ²	4200	200
Main Hallway (radiator)	RWS-03	16in ²	25	200
Women's Room Entryway (floor)	RWS-04	16in ²	350	200
Main Hallway (floor)	RWS-05	16in ²	5.4	200

The analytical report from AMA is contained in Appendix D.

2.2.6 Asbestos

Observed suspect asbestos-containing materials (ACM) were found to be in good condition. An asbestos survey had been conducted by ARNG personnel prior to the site visit and an Operations and Maintenance (O&M) plan is in place.

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. is contained in Appendix D.

Ms. Non-Responsive asbestos inspector training certificate is provided in Appendix E.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

ERGONOMICS: The ergonomic issues were minor with regard to the monitors and keyboards. Monitors and keyboards need to be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey the illumination in the administrative area was adequate generally throughout the facility. URS recommends maintaining the area lighting in the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: Five dust wipe samples collected from the administrative area were above 200 micrograms per square foot. This is the level recommended by the NGB Region North Industrial Hygiene Office (appendix G). The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint. The NGB Region North IH Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

ASBESTOS: If an asbestos-containing material should become damaged, it is recommended that the damaged material be repaired or replaced with new, non-asbestos material by an appropriately trained professional.

HAZARD COMMUNICATION: Unlabeled secondary containers were observed in the Armorer's Supply. Secondary containers of hazardous materials should be labeled. It is best management practice to label all secondary containers.

3.0 FORMER INDOOR FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used as a gymnasium. There are plans to turn half of the space into a dining area.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

Table 3-1
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped (in ²)	Result (µg/in ²)	Maximum Surface Contamination Level (µg/ft ²)
Firing Range-Floor	FR-01	16	2000	200
Firing Range-Floor	FR-02	16	700	200
Firing Range-Lockers	FR-03	16	120	200
Firing Range-Floor	FR-04	16	420	200
Firing Range-Floor	FR-05	16	360	200

A paint chip was collected in one area where paint was peeling and sent to AMA for analysis. The paint chip sample was found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 3-2 below shows the results of the lead paint testing

Table 3-2
Levels of Lead in Paint Found in the Former Firing Range

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Firing Range-Back Wall	LBP-01	0.01	0.031

The analytical report from AMA is contained in Appendix D.

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: Surfaces within the former firing range were found to contain lead dust levels which exceeded the maximum limit set by the NGB Region North Industrial Hygiene Office (Appendix G). URS recommends that the former firing range be cleaned by an appropriately licensed contractor. Guidelines for the cleaning and rehabilitation of former indoor firing ranges is provided in Appendix H.

4.0 DRILL HALL

4.1 Operation Description

The Drill Hall is a 7,500 square foot area with about a 30 foot high ceiling used for assembling personnel. The walls are constructed of cinder blocks with a concrete floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

**Table 4-1
Levels of Lead Dust Found in the Drill Hall**

Sample Location	URS Sample Number	Area Wiped (in ²)	Result (µg/ft ²)	Maximum Safe Surface Contamination Level (µg/ft ²)
Drill Hall-Floor	WS-06	16	220	200
Drill Hall-Electric Panel	RWS-02	16	68	200

The analytical report from AMA is contained in Appendix D.

4.2.2 Asbestos

Observed suspect asbestos-containing materials (ACM) were found to be in good condition. An asbestos survey had been conducted by ARNG personnel prior to the site visit and an Operations and Maintenance (O&M) plan is in place.

The U. S. Environmental Protection Agency (EPA) states that any material with greater than 1% asbestos must be treated as ACM (U.S. EPA, Title 40 CFR Part 763.87 (c)(2)). The analytical report from AMA Analytical Services, Inc. is contained in Appendix D.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: A dust wipe sample collected from the drill hall was above 200 micrograms per square foot. This is the level recommended by the Region North Industrial Hygiene Office (appendix G). The U.S. Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.1025 and 29 CFR 1926.62 are designed to protect workers potentially exposed to elevated airborne levels of lead from lead-based paint. The NGB Region North IH Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

5.2.1 Asbestos

Exposed mudded pipe fitting insulation was observed in the Boiler Room. Bulk samples were not collected in the boiler room of suspect ACM. An asbestos survey had been conducted by ARNG personnel prior to the site visit. The material in the boiler room is known to be an asbestos-containing material.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

ASBESTOS: The observed ACM mudded pipe fitting insulation was exposed and should be repaired. These repairs need to be performed by an appropriately trained technician.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A program was not found regarding hazardous communications. Training records were not found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15, 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

March 10, 2006

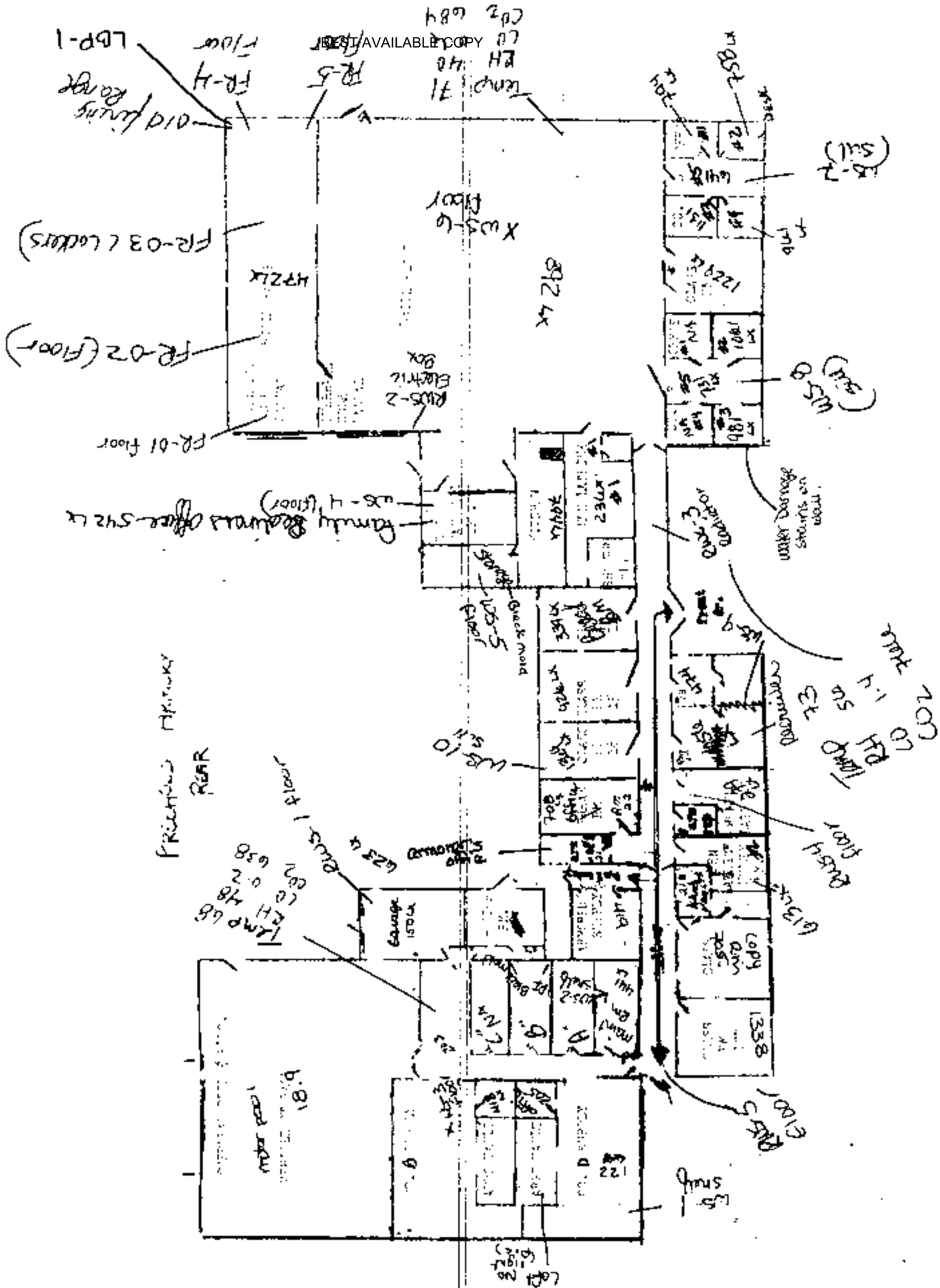
PN: 39741509 ; J5 Army National Guard\39741509 - Freehold, NJ\Reports\Freehold Report - Reviewed - Final.doc

URS

14

APPENDIX A
ARMORY DRAWING

Outside Temp 79
RH 33
CO 2.3
CO2 397



APPENDIX B
PERSONNEL LIST

**PERSONEL LIST
FREEHOLD ARMORY**

Name	Rank
Non-Responsive	SFC
[REDACTED]	SFC
[REDACTED]	SFC
[REDACTED]	SSG
[REDACTED]	SSG

APPENDIX C
HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Freehold, NJ
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128481
Date Analyzed: 06/29/2004
Person Submitting: [Redacted]
Report Date: 29-Jun-04

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0449135	WS-01	Furnace	Wipe	****	0.111	67.51 ug/ft²	260 ug/ft²	
0449136	WS-02	Furnace	Wipe	****	0.111	33.75 ug/ft²	51 ug/ft²	
0449137	WS-03	Flame	Wipe	****	0.111	108.01 ug/ft²	2700 ug/ft²	
0449138	WS-04	Furnace	Wipe	****	0.111	13.50 ug/ft²	22 ug/ft²	
0449139	WS-05	Furnace	Wipe	****	0.111	33.75 ug/ft²	71 ug/ft²	
0449140	WS-06	Furnace	Wipe	****	0.111	67.51 ug/ft²	220 ug/ft²	
0449141	WS-07	Furnace	Wipe	****	0.111	33.75 ug/ft²	77 ug/ft²	
0449142	WS-08	Furnace	Wipe	****	0.111	13.50 ug/ft²	26 ug/ft²	
0449143	WS-09	Flame	Wipe	****	0.111	108.01 ug/ft²	480 ug/ft²	
0449144	WS-10	Furnace	Wipe	****	0.111	13.50 ug/ft²	35 ug/ft²	
0449145	RWS-01	Flame	Wipe	****	0.111	108.01 ug/ft²	4200 ug/ft²	
0449146	RWS-02	Furnace	Wipe	****	0.111	33.75 ug/ft²	68 ug/ft²	
0449147	RWS-03	Furnace	Wipe	****	0.111	13.50 ug/ft²	25 ug/ft²	
0449148	RWS-04	Flame	Wipe	****	0.111	108.01 ug/ft²	350 ug/ft²	
0449149	RWS-05	Furnace	Wipe	****	0.111	2.70 ug/ft²	5.4 ug/ft²	
0449150	FR-01	Flame	Wipe	****	0.111	108.01 ug/ft²	2000 ug/ft²	
0449151	FR-02	Flame	Wipe	****	0.111	108.01 ug/ft²	700 ug/ft²	
0449152	FR-03	Furnace	Wipe	****	0.111	67.51 ug/ft²	120 ug/ft²	
0449153	FR-04	Flame	Wipe	****	0.111	108.01 ug/ft²	420 ug/ft²	
0449154	FR-05	Flame	Wipe	****	0.111	108.01 ug/ft²	360 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

An AIHA (#8863), NVLAP (#101143), & New York ELAP (#10920) Accredited Laboratory

4475 Forbes Blvd. • Lanham, MD 20706 • (301) 459-2640 • Toll Free (800) 346-0961 • Fax (301) 459-2643

CERTIFICATE OF ANALYSIS

Client: National Guard Bureau
Address: 301-JH Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Armory
Job Location: Freehold, NJ
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128481
Date Analyzed: 06/29/2004

Person Submitting: [Redacted]
Report Date: 29-Jun-04

Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0449155	LBP-01	Flame	Paint Chip	****	N/A	0.01 %Pb	0.031 %Pb	
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B								
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B								
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)								
%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)								
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.								
						Non-Responsive		
						Technical Manager:		
						Non-Responsive		
						Analysis:		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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APPENDIX E
TRAINING CERTIFICATES

Certificate of Training

Non-Responsive

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

JULY 17, 2003

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies

RCSA 20 - 440 - 1-9 and RCSA 20 - 441 and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

Certificate Number: ABIRE10892

Exam Grade: 97%

Exam Date: 07/17/2003

Expiration Date: 07/17/2004

Non-Responsive

W, CSP, RS

Non-Responsive

Training Director

APPENDIX F
PHOTOGRAPHS

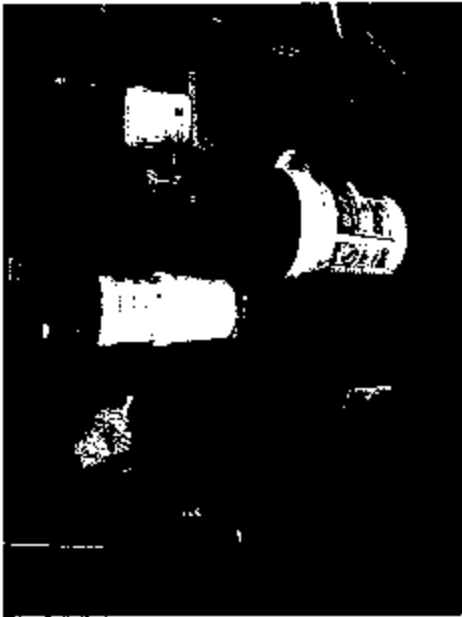


Photo 2:
Armorer's Supply



Photo 4:
Unlabeled Bottles in Armorer's Supply



Photo 1:
Armorer's Supply



Photo 3:
Break Fluid on Shelf in Armorer's Supply



Photo 6:
Blocked Flammable Cabinets



Photo 8:
Storage A-Mold Growth on Pipe Insulation



Photo 5:
Armorer's Supply-Fire Extinguisher on
Floor



Photo 7:
Co D Supply-Loft w/ No Light



Photo 9:
Storage A-Mold Growth on Drywall



Photo 10:
Hall Outside Garage-Unobstructed Panels



Photo 11:
Motor Pool-Waste Drums w/ Labels

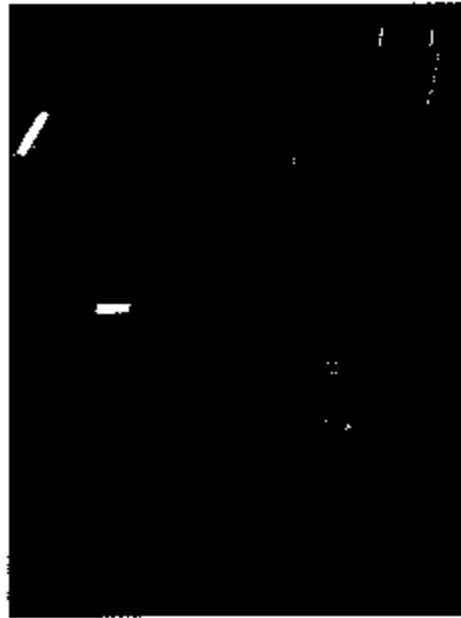


Photo 12:
Motor Pool-Blocked Flammable Cabinets

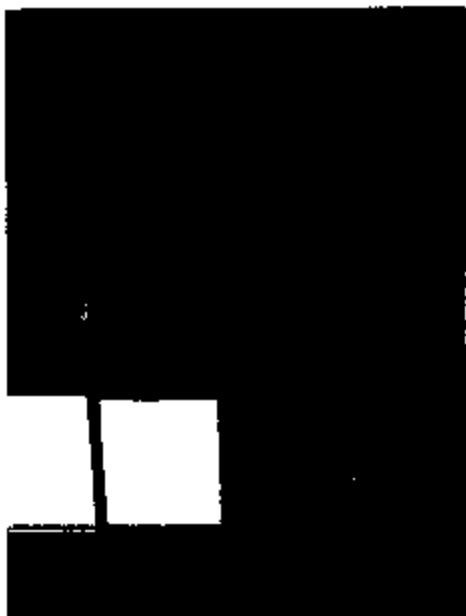


Photo 14:
Motor Pool-Marked Fire Extinguisher



Photo 16:
Boiler Room-Oil Soaked Pads

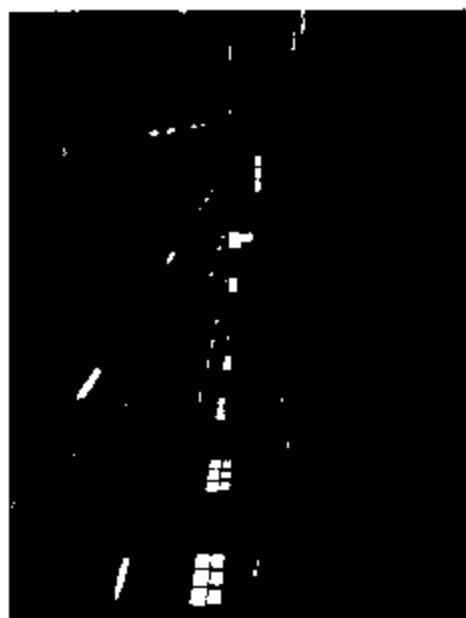


Photo 13:
Motor Pool Layout

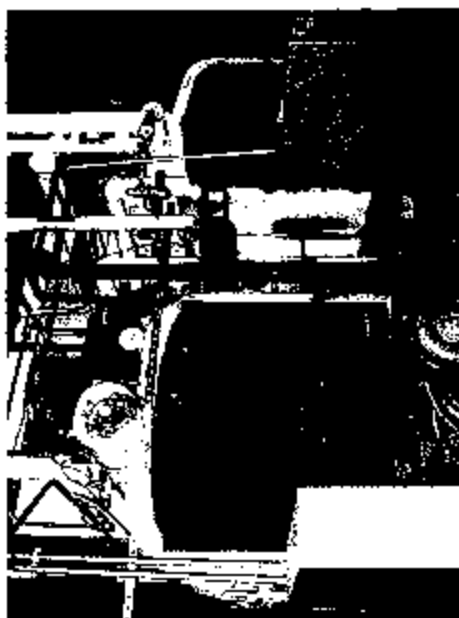


Photo 15:
Boilers



Photo 18:
Kitchen-Fire Extinguisher, Not Clearly Visible



Photo 20:
Drill Hall Layout



Photo 17:
Boiler Room-Exposed Muddled Fitting

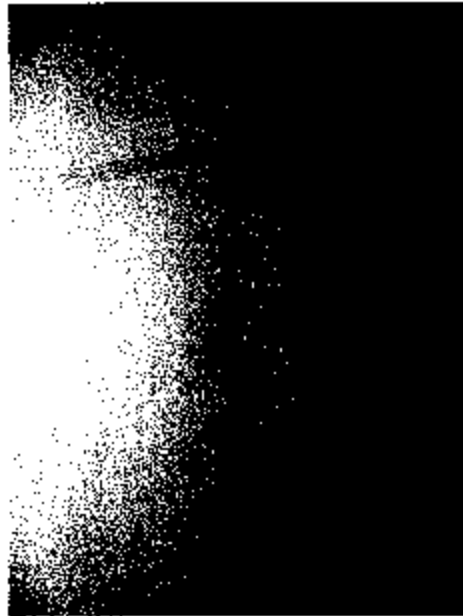


Photo 19:
Kitchen Storage-Water Damaged Ceiling
Tile with Mold Growth

APPENDIX G
RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15, 30 DECEMBER 2002)

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

ADDENDUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

	Paragraph
Purpose	1
References	2
Explanation of Abbreviations and Terms	3
Policy and Procedures	4
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	16
Range Rehabilitation	17
Conversion of Indoor Firing Ranges	18
Deviation	19
 Appendices	
Appendix A - General Procedures for Collecting Wipe Samples	
Appendix B - Sampling Strategy for Collection of Wipe Samples	
Appendix C - Interpretation of Sample Results (Prior to Cleaning)	
Appendix D - Interpretation of Sample Results (After Cleaning)	
Appendix E - Recommended Sample Media and Containers	
Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results	
Appendix G - Surface Wipe Sample Sheet	
Appendix H - Air Sampling Sheet	
Appendix I - Glossary	

Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program)
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
- e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are listed in the glossary.

4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

- a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.
- b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same lot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of –

(a) Ghost Wipes™ (PREFERRED METHOD)– Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

~~Interim (1) can be used until a final method is approved. 7-10-00~~

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appendix A.

9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

c. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

l. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements.

A medical examination must include—

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- f. Smoking and snacking materials will not be permitted in contaminated areas.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- i. The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- (1) Protective coveralls with hood and shoe covers or disposable Tyvek™ full body suit.
- (2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
- (3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.
- c. Inspect Louvers, if applicable, to ensure they are opening fully.
- d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. **Bullet Trap.** The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.
- f. The range ventilation system will be operational during all bullet trap cleaning procedures.
- g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.
- h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

- a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.
- b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.
- c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

- a. All ranges slated for conversion will be inspected and evaluated.
- b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.
- c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.
- d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.
- e. Light fixtures and ventilation system grills must be removed and decontaminated.
- f. Ventilation system ducts need to be decontaminated or removed and replaced.
- g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.
- h. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Arlington, VA 22204-1382.

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline

C-3 Over 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface Regional Industrial Hygiene Office for specific guidance.

APPENDIX D**INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)**

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq. ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E**RECOMMENDED SAMPLE MEDIA AND CONTAINERS**

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3368M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc. Supelco Park Bellefonte, PA 16823	2-3381IM

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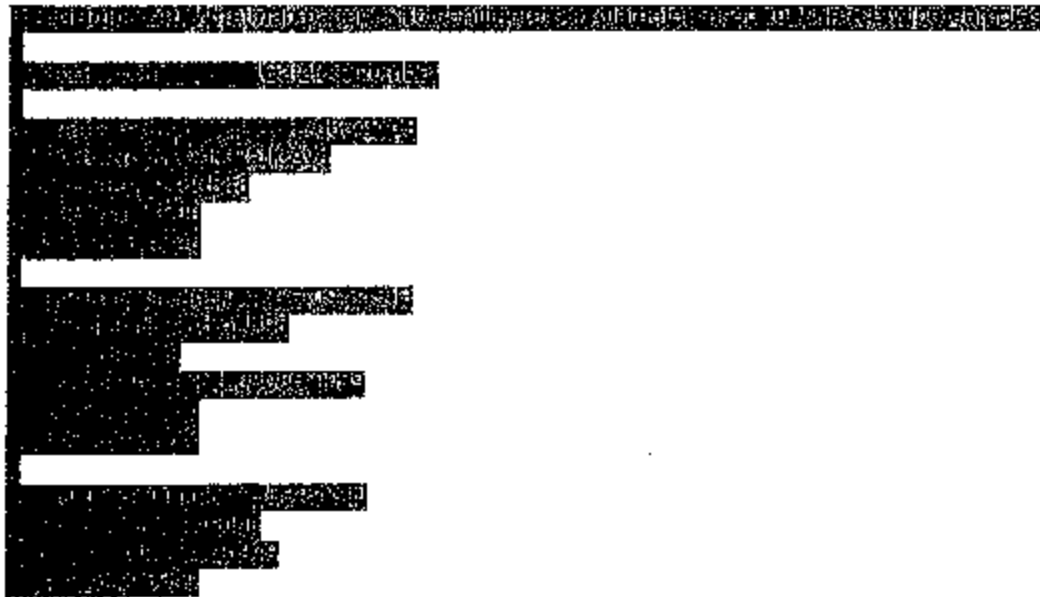
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APPENDIX E (Continued)

800-247-8628
800-359-3041

b. Millipore Corp. AAWP-037-00
Ashdy Road
Bedford, MA 01730
617-275-9200
800-225-1380

c. SKC, Inc. 225-5
334 Valley View Rd.
Eighty Four, PA 15330
412-941-9701
800-752-8472



E-5. Glass container (25 milliliter) for collection and shipment of media.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|---|-------------------|
| a. Pierce Chemical Co.
P.O. Box 117
Rockford, IL 61105
815-968-0747
800-874-3723 | 13219 (screw cap) |
| | |
| b. Alltech Associates, Inc.
Applied Science Labs
2651 Waukegan Rd.
Deerfield, IL 60015
312-948-8600 | 95321 (screw cap) |

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

Order From Catalog Number

Environmental Express SC4200
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

Environmental Express SC499
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Deionized water can be obtained at local and state water labs or a hospital.

APPENDIX F

EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}} = \frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility		City		State		Location (bldg/area)	
Description of Operation		Persons Exposed		Hrs/Day		Method of Collection	
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date		Pump Manufacturer			
Comments to Lab							

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX I ABBREVIATIONS AND TERMS

Section I Abbreviations

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX I (Continued)

**Section II
Terms**

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.



1215 Manor Drive, Suite 205
Mechanicsburg, PA 17055
Phone: 717.590.7031
Fax: 717.590.7936
www.complianceplace.com

Industrial Hygiene Survey Report

**National Guard Facility
Freehold Readiness Center**

Prepared For: National Guard Bureau Region North IH
301-IH Old Bay Lane
Havre de Grace, MD 21078

Survey Location: Freehold Readiness Center
635 State Highway
Freehold, NJ 07728

Prepared By: Compliance Management International
1215 Manor Drive
Suite 205
Mechanicsburg, PA 17055

Survey Date: February 7, 2013

Report Date: April 4, 2013

Non-Responsive

Senior Industrial Hygienist

Table of Contents

Section 1.0 Executive Summary	3
Section 2.0 Operation Description & Observations.....	4
Section 3.0 Lead Testing.....	5
Section 4.0 Lighting.....	7
Section 5.0 Indoor Air Quality.....	8
Section 6.0 Suspect Asbestos Containing Building Materials.....	10
Section 7.0 Equipment	11
Section 8.0 Limitations	12
Appendix A. Laboratory Analysis Report	13
Appendix B. Photographs	14
Appendix C. Floor Plan	15
Appendix D. References	16

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on February 7, 2013, at the Freehold Readiness Center located at 635 State Highway Freehold, NJ 07728. The survey was performed by Mr. Non-Responsive.

1. Lead bulk, surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot (ug/ft^2) in one location. Cleaning procedures should be improved and remedial action should be taken to maintain lead levels below $200 \text{ ug}/\text{ft}^2$. See Section 3.0 for detailed findings.
2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in two locations tested. See Section 4.0 for detailed findings.
3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Relative humidity levels were less than the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in indoor locations evaluated.
 - b. Carbon dioxide, carbon monoxide, and temperature levels measured were within recommended guidelines.
 - c. A military vehicle was observed idling in the Garage Area without proper ventilation. This could result in the release and buildup of potentially hazardous gases in the area (e.g., carbon monoxide).

See Section 5.0 for detailed findings.

4. Suspected asbestos containing materials were found to be intact and in good condition. See Section 6.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Freehold Readiness Center is mainly an administrative facility with a drill hall, offices, classroom, and converted firing range/storage areas, and two garages/storage areas. There were approximately 2 full-time employees stationed at this facility at the time of this survey.

The exact age of the building was unknown however it is believed to have been built in the 1950's. The building is one story with a brick exterior. The interior walls are concrete block, metal or brick, and drywall. The floors are concrete or vinyl floor tile.

The Heating, Ventilation, and Air-Conditioning (HVAC) system consisted of an oil-fired hot water furnace for heat and window units for air conditioning.

The area of the building that was once a firing range has been converted into a storage area. No firing range components remain. It was reported that lead abatement had occurred in this area in 2011.

There is no child-care facility in the building.

Overall housekeeping practices were adequate.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Sgt. [Non-Responsive] and Sgt. [Non-Responsive] from the Army National Guard Safety office were onsite during the survey.

Section 3.0 Lead Testing

Due to the age of the building there is a potential for lead based paint to be present. Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Bulk (%)	Air Ug/m ³	Surface ug/ft ²
1	Drill Hall	*	<5.5	*
2	Converted Firing Range/Storage Area	*	<5.4	*
3	Drill Hall – Floor	*	*	<110
4	Drill Hall – Window Sill	*	*	<110
5	Drill Hall – Top of Candy Machine	*	*	<110
6	Drill Hall – Floor by Entrance to Converted Firing Range/Storage Area	*	*	<110
7	Converted Firing Range/Storage – Floor	*	*	<110
8	Converted Firing Range/Storage – Top of Wall Locker	*	*	<110
9	Converted Firing Range/Storage – Top of Metal Storage Rack	*	*	<110
10	Kitchen – Top of Refrigerator	*	*	<110
11	Kitchen – Top of Metal Storage Rack	*	*	<110
12	Vehicle Storage Area/Storage Area – Floor	*	*	170
13	Garage/Storage Area - Floor	*	*	600
14	Classroom – Top of Desk	*	*	<110
15	Orderly Office – Top of Cubical Storage Bin	*	*	<110
16	Recruiting Office – Top of Book Shelf	*	*	<110
17	Second Platoon Office – Top of File Cabinet	*	*	120
18	Blank - Wipe	*	*	<12 ug
19	Blank - Air	*	<3 ug	*
20	Bulk Paint Chip – Garage/Storage Area Wall	0.026	*	*
-	Criteria	0.5	50	200

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **ug/ft²** = micrograms per square foot
4. **ug/m³** = micrograms per cubic meter
5. **ug** = micrograms

Sources:

1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
2. Occupational Safety and Health Administration (OSHA) 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft^2) as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of $40 \text{ ug}/\text{ft}^2$ on floors and $250 \text{ ug}/\text{ft}^2$ on windowsills should be observed. There is no child care provided at this facility.

Lead bulk, surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of $200 \text{ ug}/\text{ft}^2$ in the Garage/Storage Area – Floor. All other locations were less than $200 \text{ ug}/\text{ft}^2$.

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of $200 \text{ ug}/\text{ft}^2$.

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3).
- Paint was observed to be peeling in the garage/storage area wall. A bulk sample were collected and determined to contain 0.026% Pb. This is less than the Environmental Protection Agency (EPA) definition of lead based paint = 0.5%. However, all areas of peeling paint should be repaired.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to American National Standards Institute (ANSI)/Illuminating Engineering Society of North America (IESNA) RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles (FC)	Recommended Lighting (FC)	Sufficient Lighting
Drill Hall	69.3	10	Yes
Converted Firing Range/Storage Area	0.3	30	No
Recruiting Office	81.4	30-50	Yes
Weight Room	93.8	30	Yes
FRG Office	35.1	30-50	Yes
Kitchen	68.1	50	Yes
Office 24-A	53.7	30-50	Yes
Counseling Office	35.7	30-50	Yes
Orderly Office	72.2	30-50	Yes
Women's Bathroom	36.1	5	Yes
Office 24-C	71.1	30-50	Yes
Men's Bathroom	49.2	5	Yes
Second Platoon Office	92.8	30-50	Yes
Classroom	0.9	30-50	No
Vehicle Storage/Storage Area	13	10	Yes
Garage/Storage Area	35.4	10	Yes

Table Notes:

1. FC = Foot Candles
2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level measured did not meet the minimum recommended guideline in the classroom and converted firing range/storage area. Increase lighting in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 8554 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature and relative humidity ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Office 24-A	68.7	16	558	0
Orderly Office	69.3	16	568	0
Vehicle Storage/Storage Area	55.9	17.6	549	2.4
Garage	52.7	21.9	324	0
Outdoors	41.0	23.6	305	0
Criteria	68-79	30-60	<1,005	<9

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **(%)** = percent relative humidity
4. **F** = degrees Fahrenheit

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Relative humidity levels were less than the recommended guideline of 30-60%. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Relative humidity should be maintained at 30-60%.

- Carbon dioxide levels measured did not exceed the recommended ceiling of 1,005 parts per million (ppm). This indicates that outdoor air ventilation is adequate in all areas.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm.
- Temperature levels measured were within the recommended guideline of 68-79 degrees F.
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The only notable observation was the presence of a military truck idling in the Garage Area. The garage was used only for the storage of vehicles, no maintenance was performed in the garage. There is no overhead vehicle exhaust system present in this area. It was reported that the vehicles are routinely started and left to idle for an hour. Vehicles should not be permitted to idle in this area due to the release of potentially hazardous chemicals (e.g., carbon monoxide) in the vehicle exhaust. If necessary, install an overhead vehicle exhaust ventilation system in this area.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (e.g., constructed in 1950'S) asbestos-containing materials (ACM) could be present in the facility. The following suspect asbestos-containing material was observed:

1. 9" x 9" vinyl floor tile located in the hallway storage closet and the FRG office. Approximately 180 ft² was observed.
2. Inaccessible areas such as behind walls or crawlspaces were not inspected. Other ACM could be present in these areas.

All ACM was observed to be intact and in good condition.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	K98364	4/2012	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647610	2/7/2013	2.48 LPM
SKC Air Sampling Pump	647631	2/7/2013	2.50 LPM

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	Freehold-RC	Chain Of Custody:	515135
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	NJ	Date Submitted:	2/12/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	2/18/2013
Attention:	Non-Responsive			Report Date:	2/18/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13037345	1	Flame	Air	550	N/A	5.5 ug/m³	<3	<5.5 ug/m³	
13037346	2	Flame	Air	552	N/A	5.4 ug/m³	<3	<5.4 ug/m³	
13037347	3	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037348	4	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037349	5	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037350	6	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037351	7	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037352	8	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037353	9	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037354	10	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037355	11	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037356	12	Flame	Wipe	****	0.108	110 ug/ft²	18	170 ug/ft²	
13037357	13	Flame	Wipe	****	0.108	110 ug/ft²	65	600 ug/ft²	
13037358	14	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037359	15	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037360	16	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13037361	17	Flame	Wipe	****	0.108	110 ug/ft²	13	120 ug/ft²	
13037362	18	Flame	Wipe Blank	****	N/A	12 ug		<12 ug	
13037363	19	Flame	Air Blank	0	N/A	3 ug/m³		<3 ug	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client: National Guard Bureau
Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Freehold-RC
Job Location: NJ
Job Number: Not Provided
P.O. Number: W912K6-09-A-0003

Chain Of Custody: 515135
Date Submitted: 2/12/2013
Person Submitting: Non-Responsive
Date Analyzed: 2/18/2013 **Report Date:** 2/19/2013

Attention:

Non-Responsive

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13037364	20	Flame	Paint Chip	****	N/A	0.0075	%Pb	0.026 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)

%Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

See QC Summary for analytical results of quality control samples associated with these samples.

Non-Responsive

Non-Responsive

Analyst

Technical Manager

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

**AMA Analytical Services, Inc.**

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AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY(Please Refer To This
Number For Inquires)

515135

Page 1 of 2

Mailing/Billing Information:

- Client Name: National Guard Bureau
- Address 1: 301-JH Old Bay Lane
- Address 2: Attn: NGB-ARS-IHNE
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- Job Name: Freehold-Rc
- Job Location: NJ
- Job #: _____
- Contact Person: Non-Responsive @ Non-Responsive
- Submitted By: Non-Responsive Signature: Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NORMAL BUSINESS HOURS <input type="checkbox"/> Immediate <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> 3 Day <input checked="" type="checkbox"/> 5 Day + Date Due: <u>2/19/13</u>		REPORT TO: <input checked="" type="checkbox"/> Inc. with Report <input checked="" type="checkbox"/> <u>Comp house place.com</u> <input type="checkbox"/> Pa. <u>us.army.mil</u> <input type="checkbox"/> Ve. <u>us.army.mil</u>	
--	--	---	--	--	--

Asbestos Analysis**PCM Air - Please Indicate Filter Type:**

- ☐
- NIOSH 7400 (QTY)
-
- ☐
- Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐
- AHERA (QTY)
-
- ☐
- NIOSH 7402 (QTY)
-
- ☐
- Other (specify _____) (QTY)

PLM Bulk

- ☐
- EPA 600 - Visual Estimate (QTY)
-
- ☐
- EPA Point Count (QTY)
-
- ☐
- NY State Friable 198.1 (QTY)
-
- ☐
- Grav. Reduction ELAP 198.6 (QTY)
-
- ☐
- Other (specify _____) (QTY)

MISC

- ☐
- Vermiculite
-
- ☐
- Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐
- ELAP 198.4/Chatfield (QTY)
-
- ☐
- NY State PLM/TEM (QTY)
-
- ☐
- Residual Ash (QTY)

TEM Dust

- ☐
- Qual. (pres/abs) Vacuum/Dust (QTY)
-
- ☐
- Quan. (s/area) Vacuum D5755-95 (QTY)
-
- ☐
- Quan. (s/area) Dust D6480-99 (QTY)

TEM Water

- ☐
- Qual. (pres/abs) (QTY)
-
- ☐
- ELAP 198.2/EPA 100.2 (QTY)
-
- ☐
- EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)

Metals Analysis

- ☒
- Pb Paint Chip (QTY)
-
- ☐
- Pb Dust Wipe (wipe type
- choat
-) (QTY)
-
- ☒
- Pb Air
- 3
- (QTY)
-
- ☐
- Pb Soil/Solid (QTY)
-
- ☐
- Pb TCLP (QTY)
-
- ☐
- Drinking Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Waste Water
- ☐
- Pb (QTY)
- ☐
- Cu (QTY)
- ☐
- As (QTY)
-
- ☐
- Pb Furnace (Media _____) (QTY)

Fungal Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media _____) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media _____) (QTY)
☐ Other (Specify _____) (QTY)

SAMPLE INFORMATION**ANALYSIS****CLIENT CONTACT**

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	W-GOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
1	Drill Hall	2-7	550					X											
2	Converted Fire Range		552					X											
3	Drill Hall - floor			100cm ²				X											
4	Drill Hall - window sill							X											
5	Drill Hall - Candy machine							X											
6	Drill Hall - floor by Range							X											
7	Converted Range - floor							X											
8	Converted Range - locker							X											
9	Converted Range - Storage Rack							X											
10	Kitchen - Fridge							X											
11	Kitchen - Storage Rack							X											
12	Vehicle Storage - floor							X											

LABORATORY

Posted to NGB FOIA Reading Room

May 2018
(CUSTODY)

- Date/Time RCVD: 2/12/13 @ 1000 Via: Fedex By (Print): MEM Sign: _____
- Date/Time Analyzed: _____ @ _____ Sign: _____
- Results Reported To: _____ Via: _____ Date: _____/_____/_____
Time: _____
- Comments: _____

BEST AVAILABLE COPY

Sign: _____

FOIA Requested Record #J-15-0085 (NH)

Time: Released by National Guard Bureau

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CHAIN OF CUSTODY

 (Please Refer To This
Number For Inquires)

515135

Page 2 of 2

Mailing/Billing Information:

 1. Client Name: National Guard Bureau
 2. Address 1: 301-1H Old Bay Lane
 3. Address 2: Attn: NGB-ARS-IHNE
 4. Address 3: Havre de Grace, Maryland 21078
 5. Phone #: (410) 942-0273 Fax #: (410) 942-0254
Submittal Information:

 1. Job Name Freehold - RC
 2. Job Location NJ
 3. Job #: W912K6-09-A-0003
 4. Contact Person: Non-Responsive (410) 942-0273
 5. Submitted by: Non-Responsive
Reporting Information (Results will be provided as soon as technically feasible):
AFTER HOURS (must be pre-scheduled)
☐ Immediate Date Due: _____
☐ 24 Hours Time Due: _____
 Comments: _____

☐ Immediate
☐ Next Day
☐ 2 Day

NORMAL BUSINESS HOURS
☐ 3 Day
☐ 5 Day +
☐ Date Due: _____
☐ Results Required By Noon
 (Every Attempt Will Be
 Made to Accomodate)

REPORT TO:
☒ Non-Responsive with Report
 @ complianceplus.com
 @us.army.mil
 @us.army.mil

Asbestos Analysis
PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) _____ (QTY)

PLM Bulk
☐ EPA 600 - Visual Estimate (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) _____ (QTY)

MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk
☐ ELAP 198.4/Chatfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)

TEM Dust
☐ Qual. (pres/abs) Vacuum/Dust (QTY)
☐ Quan. (s/area) Vacuum D5755-95 (QTY)
☐ Quan. (s/area) Dust D6480-99 (QTY)

TEM Water
☐ Qual. (pres/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)

Metals Analysis
☐ Pb Paint Chip (QTY)
☐ Pb Dust Wipe (wipe type _____) (QTY)
☐ Pb Air (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media _____) (QTY)

Biological Analysis

 Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media _____) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media _____) (QTY)
☐ Other (Specify) _____ (QTY)

SAMPLE INFORMATION
ANALYSIS
MATRIX
CLIENT CONTACT
(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER	OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
13. Garage - floor		2-7		100cm ²				X												
14. Classroom - Desk								X												
15. orderly - Office - cubical								X												
16. Recruting office - Book Shelf								X												
17. 2nd At. Office - File Cabinet								X												
18. Blank - Wipe				0				X												
19. Blank - Air			0					X												
20. Garage / Storage								X			X									

LABORATORY

Posted on NGB FOIA Reading Room

 May 2018
 (CUSTODY)

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ Sign: _____

3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____ Time: _____

4. Comments: _____

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FOIA Requested Record #J-15-0085 (NH)

Released by National Guard Bureau

Appendix B. Photographs



Exterior of the facility



Drill Hall



Converted firing range/storage area

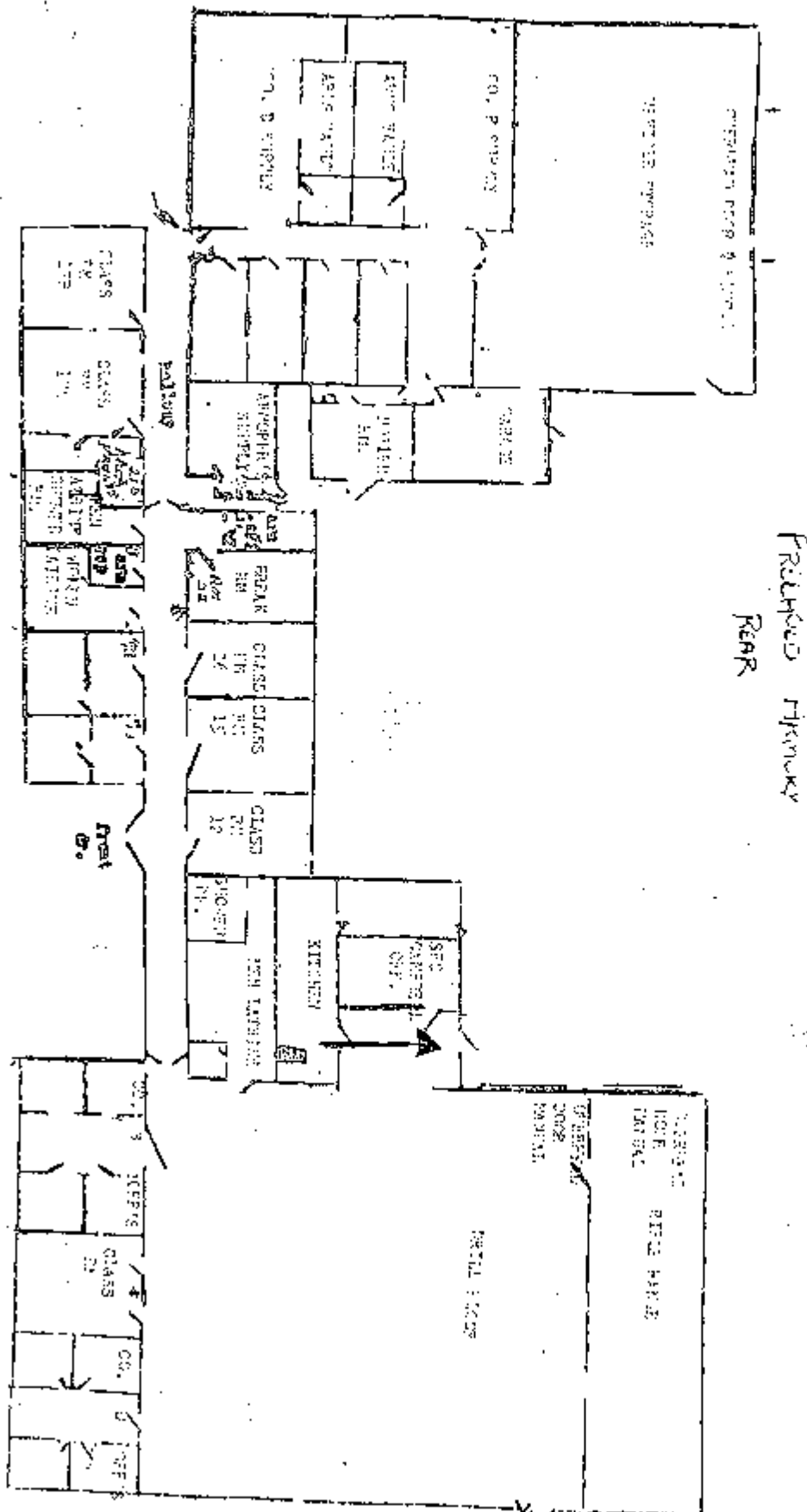


Garage/Storage area peeling paint on walls



Storage closet 9"X9" floor tile

Appendix C. Floor Plan



Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead.
2. American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2012 Edition.
3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition.
4. American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010.
5. American National Standards Institute (ANSI)/Illuminating Engineering Society of North America (IESNA) RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America.
6. ANSI/IESNA RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America.
7. National Emission Standard Hazardous Air Pollutants (NESHAP) – The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
8. National Ambient Air Quality Standards (NAAQS) - National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h)(3)].
10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
13. ANSSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Jersey 03079

**FINAL
INDUSTRIAL HYGIENE SURVEY REPORT
HACKETTSTOWN ARMORY
HACKETTSTOWN, NEW JERSEY**

June 2006
PN: 39741509

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY.....	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	2
2.2.3 Carbon Monoxide	3
2.2.4 Lighting.....	3
2.2.5 Lead.....	4
2.3 VENTILATION SYSTEM EVALUATION.....	5
2.4 NOISE MEASUREMENTS.....	5
2.5 PERSONAL PROTECTIVE EQUIPMENT	5
2.6 INTERPRETATION OF RESULTS.....	5
3.0 FORMER INDOOR FIRING RANGE.....	6
3.1 OPERATION DESCRIPTION.....	6
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	6
3.2.1 Lead.....	6
3.3 VENTILATION SYSTEM EVALUATION.....	6
3.4 NOISE MEASUREMENTS.....	6
3.5 PERSONAL PROTECTIVE EQUIPMENT	7
3.6 INTERPRETATION OF RESULTS.....	7
4.0 DRILL HALL.....	8
4.1 OPERATION DESCRIPTION.....	8
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	8
4.2.1 Lead.....	8
4.3 VENTILATION SYSTEM EVALUATION.....	8
4.4 NOISE MEASUREMENTS.....	8
4.5 PERSONAL PROTECTIVE EQUIPMENT	9
4.6 INTERPRETATION OF RESULTS.....	9
5.0 BOILER ROOM.....	10
5.1 OPERATION DESCRIPTION.....	10
5.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED	10
5.3 VENTILATION SYSTEM EVALUATION.....	10
5.4 NOISE MEASUREMENTS.....	10
5.5 PERSONAL PROTECTIVE EQUIPMENT	10
5.6 INTERPRETATION OF RESULTS.....	10
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS.....	11
6.1 CONFINED SPACES.....	11
6.2 HEARING CONSERVATION.....	11
6.3 RESPIRATORY PROTECTION	11
6.4 HAZARD COMMUNICATION.....	11
6.5 PERSONAL PROTECTIVE EQUIPMENT	11
7.0 REFERENCES.....	12

TABLE OF CONTENTS (Continued)

APPENDICES

Appendix A Armory Drawing

Appendix B Personnel List

Appendix C Hazardous Materials List

Appendix D Analytical Results

Appendix E Training Certificates

Appendix F Photographs

Appendix G Recommendations for Surface Lead Dust in Armories

Appendix H Policy and Responsibilities For Inspection, Evaluation and Operation of
Army National Guard Indoor Firing Ranges (National Guard Regulation
385-15, 30 December 2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Ergonomic		
Computer workstations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (Department of the Army Pamphlet 40-21, Chapter 4, Page 7, Section 4-3)	RAC 3
Lighting		
On the day of the survey, the illumination in the administrative offices and foyer was inadequate in most circumstances.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI/IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected from the facility in amounts greater than 200 $\mu\text{g}/\text{ft}^2$	Personnel trained in accordance with the OSHA Lead Standard should clean the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025 (e)(1)(i))	RAC 3
Asbestos		
A site-specific asbestos operations and maintenance plan was not available.	Maintain a site specific asbestos operations and maintenance plan to manage asbestos-containing materials by labeling of asbestos (OSHA 29 CFR 1910.1001 (j)(4)); employee information and training (OSHA 29 CFR 1910.1001 (j)(7)); housekeeping (OSHA 29 CFR 1910.1001 (k)); medical surveillance (OSHA 29 CFR 1910.1001 (l)(1)); record keeping (OSHA 29 CFR 1910.1001 (m)(1))	RAC 3
Mold		
Water damaged was observed throughout. Mold growth could become an issue if left unattended.	Determine and repair source of water. Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 4

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Hackettstown Armory located at 901 Willow Grove Street in Hackettstown, New Jersey 07840. This report includes an executive summary and a description of the site activities and findings and a list of conclusions and recommendations.

On March 25, 2004, Mr. **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Hackettstown, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Armory **Non-Responsive** of the New Jersey ARNG was Mr. **Non-Responsive** site contact for this survey.

This armory is a one story brick building, with an attached drill hall that is constructed primarily of brick and mortar. This facility is built on a concrete slab. with a pitched asphalt roof. The building was constructed in the 1960's with an addition constructed in 1987. A shop layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A. The risk assessment codes associated with this project are contained in Table 1.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Some computer workstation chairs could not be adjusted for height, the armrests were in a fixed position and keyboards in offices could not be adjusted. Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then adjustments need to be made to accommodate each person. No complaints were received by URS concerning workstations at the time of this survey.

Paints, lubricants, alcohol, brake fluid and antifreeze were located in the flammable lockers with hazard communication data.

2.2 Chemical and Physical Agents Sampled

On the day of the survey, relative humidity, carbon dioxide and carbon monoxide measurements were made in boiler room, drill floor, firing range orderly room, armorer's room and outside. These readings were all made using a TSI Q-Trak™ (Model 8551). No indoor air quality complaints were received during this survey.

2.2.1 Relative Humidity

Relative humidity on the day of the survey ranged from 34-45.1 % throughout the various building areas with an average of 41.36%. The average reading was below the recommended maximum of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

Carbon dioxide concentrations ranged from a low of 453 to a spike of 958 parts per million (ppm), with an average of 641.8 ppm. The outside reading was 535 ppm.

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants. ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 535 ppm on the day of the survey, the ASHRAE limit would be 1,235 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide concentrations ranged from 0.1 to 2.3 ppm on the day of the survey. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm. The measured levels were below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments may include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity, irregular heartbeat, headache, nausea, and confusion.

2.2.4 Lighting

Lighting in the administrative areas was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI / IESNA RP -1-04 American National Standard Practice for Office Lighting – Table B-1).

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Lighting Footcandles	Recommended Lighting Footcandles
Drill Floor	Drill Floor	27	30
Foyer/ Hall	Hall	7	30
Orderly Room	Office	18	50
Room 12	Office	73	50
Room 13	Office	54	50
Room 14	Office	81	50
Room 11	Office	66	50
Retention Center	Office	34	50
Armorer's Office	Office	70	50
Recruiter's Office	Office	30	50
Classroom 1	Classroom	85	50

Lighting levels were below the recommended levels in approximately half of the offices.

2.2.5 Lead

One paint chip was collected in the administrative area, where peeling paint was observed. Analytical results show that the peeling paint contains 0.017% lead indicating that it is not lead-based. Lead paint levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)).

Wipe testing for lead was conducted in the administration area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 2-2 below shows the results of the lead sampling.

Table 2-2
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Room 11 (X-O) – Floor	0325-11	0.108	11	200
Retention Room – Window Sill	0325-12	0.108	16	200

Table 2-2 (Continued)
Levels of Lead Dust Found in the Former Firing Range

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Classroom (Room 2) - Floor	0325-13	0.108	24	200
Blank	0325-14	N/A	<0.3 µg	N/A

2.3 Ventilation System Evaluation

Not applicable to this operation

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

ERGONOMICS: The minor ergonomic issues with the desks, chairs and monitors should be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey the illumination in the administrative area was inadequate in most offices and generally throughout the facility. URS recommends increasing the area lighting or supplement task lighting for each workstation in the administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

ASBESTOS: All suspect asbestos-containing material was observed to be in good condition with no damage.

HAZARD COMMUNICATION: Listed containers of paints and thinners were observed in the flammable cabinets with MSDS forms located on site in the desktop guide.

3.0 FORMER INDOOR FIRING RANGE

3.1 Operation Description

The site has dismantled the former indoor firing range and the space is now used for storage.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

**Table 3-1
Levels of Lead Dust Found in the Facility**

Sample Location	URS Sample Number	Area Wiped	Result ($\mu\text{g}/\text{ft}^2$)	Maximum Surface Contamination Level ($\mu\text{g}/\text{ft}^2$)
Firing Range-Floor Center	0325-01	0.108	490	200
Firing Range-Bullet Trap	0325-02	0.108	18000	200
Firing Range –Firing End	0325-07	0.108	98	200
Firing Range – Angle Iron Support	0325-08	0.108	7100	200
Firing Range – Firing End – Top of Heater	0325-09	0.108	25	200
Blank	0325-06	N/A	7.8 μg	N/A

3.3 Ventilation System Evaluation

Not Applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: Lead sampling was performed in this area. Results indicated elevated levels of lead in dust on the floor, bullet trap angle iron support. The former firing range should be cleaned by an appropriately trained technician. The NGB Region North Industrial Hygiene Office has prepared a memorandum titled "Recommendations for Surface Lead Dust in Armories" which is provided in Appendix G. Appendix H contains guidelines for the clean-up and rehabilitation of former firing ranges.

4.0 DRILL HALL

4.1 Operation Description

Located at the east end of the building the drill hall is an open area used for storage and assembly of personnel.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using Ghost Wipes™, which meet ASTM E 1792 standards. The analytical report from AMA Analytical Services, Inc. (AMA) is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

**Table 4-1
Levels of Lead Dust Found in the Drill Hall**

Sample Location	URS Sample Number	Area Wiped	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Drill Floor-Floor Southwest	0325-03	0.108	4.3	200
Drill Floor-Floor Center	0325-04	0.108	11	200
Drill Floor-Locker Top Near Exit	0325-05	0.108	14	200
Drill Floor – Outside Range - Floor	0325-10	0.108	<70	200
Blank	0325-06	N/A	7.8 µg	N/A

Sample numbers and locations can be found on the site map in Appendix A.

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: Wipe sample for lead were all within the NGB acceptable limit of 200 micrograms per square foot (See Appendix G). No further action is required at this time.

5.0 BOILER ROOM

5.1 Operation Description

The boiler room is a mechanical space constructed of cinder block walls with a concrete floor, containing a furnace and associated piping.

5.2 Chemical and Physical Agents Sampled

No chemical or physical agents were sampled in this area.

5.3 Ventilation System Evaluation

Not applicable to this operation.

5.4 Noise Measurements

Not applicable to this operation.

5.5 Personal Protective Equipment

Not applicable to this operation.

5.6 Interpretation of Results

Not applicable to this operation.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is not required for this site.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

A program was found regarding hazard communication. Training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/ESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality

Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army National Guard Indoor Firing Ranges (National Guard Regulation 385-15, 30 December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

U. S. Housing and Urban Development

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, 1997)

U. S. Occupational Safety and Health Administration

Standard for General Industry: 29 CFR 1910

APPENDIX A
ARMORY DRAWING

3-25-04

Hackettstown Armory

↑ N

FILED 330 31-04

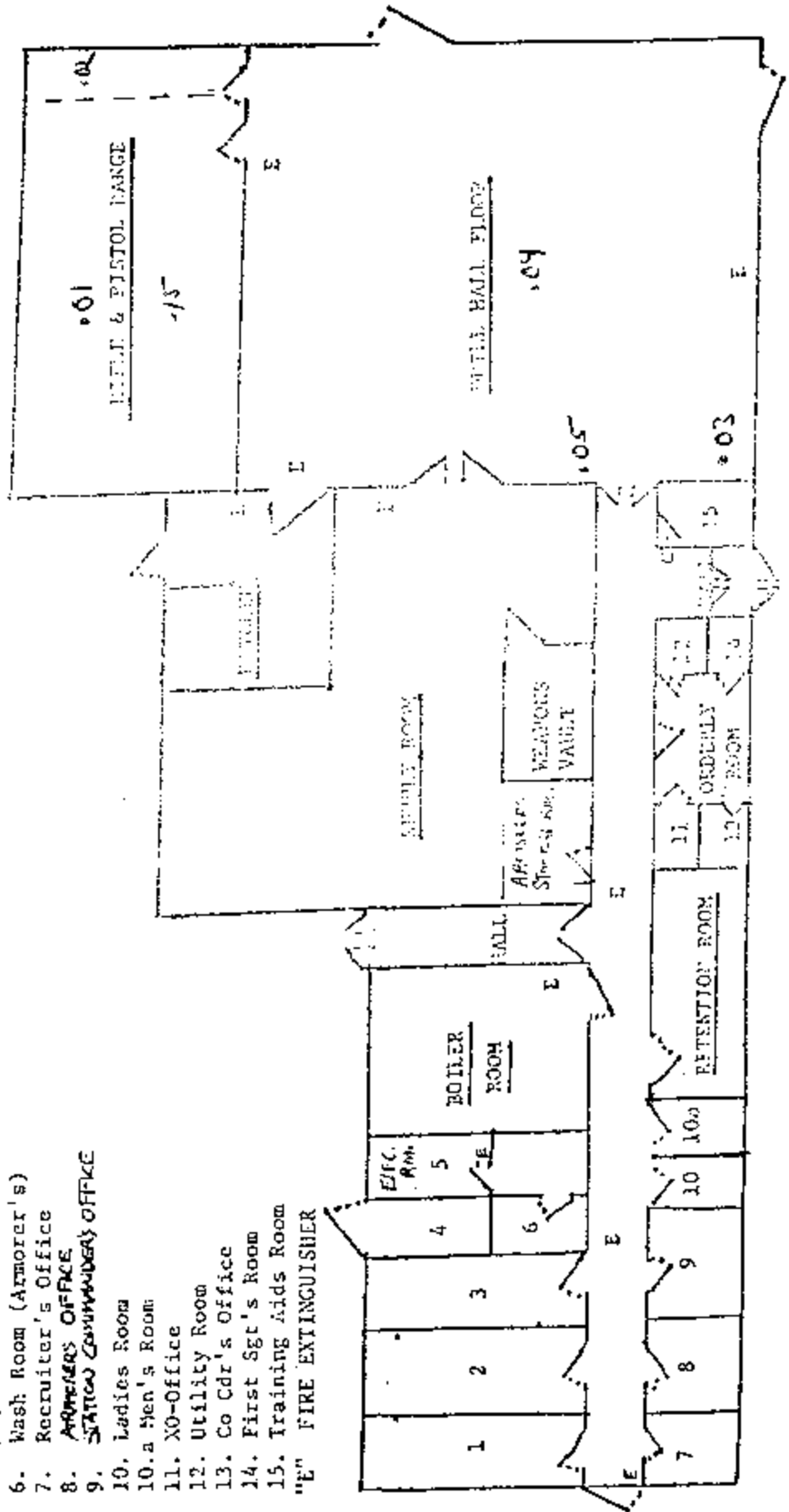
RECEIVED 31-04-04

LEGEND

1. Class Room #1
2. Class Room #2
3. Class Room #3
4. Oil Storage Room
5. ELECTRICAL RM.
6. Wash Room (Armorer's)
7. Recruiter's Office
8. ARMORER'S OFFICE
9. STATION COMMANDER'S OFFICE
10. Ladies Room
- 10.a Men's Room
11. XO-Office
12. Utility Room
13. Co Cdr's Office
14. First Sgt's Room
15. Training Aids Room

"E" FIRE EXTINGUISHER

POLICE DEPT 908-852-3300
FIRE DEPT
FIRST AID SQUAD



APPENDIX B
PERSONNEL LIST

**PERSONEL LIST
HACKETTSTOWN ARMORY**

Name	Rank
Non-Responsive (on Commander)	SFC
Non-Responsive (Supply Sgt.)	SGT
Non-Responsive (Recruiter)	SSG
Non-Responsive (Regional Supervisor)	CIV
Non-Responsive (Chief Armorer)	CIV

APPENDIX C
HAZARDOUS MATERIALS LIST

GENERAL PURPOSE FORM

(AMCCOMP 5-2)

BEST AVAILABLE COPY

MONTH:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
JAN. 9, 00																															
GREAS-AIRCRAFT-WIDE TEMP.																															
GREAS-AUTO/ARTILLERY (G403)																															
LUBRICATING-OIL G0 80/90																															
H 15 W 40 ENGINE OIL																															
HDO-30 (NONE ON HAND)																															
HDO-10																															
HYDRAULIC FLUID HS15																															
HYDRAULIC FLUID HS44 (FRH)																															
ALCOHOL DENATURED																															
COMPRESSOR OIL																															
PENETRATING OIL																															
CLEANING COMPOUND SOLVENT																															
CLP																															
LUBRICANT TIRE AND RIM																															

[AMCCOMP 5.2]

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AMCCOM FORM 49-R, 1 JUL 84

REPLACES ARCOM FORM 49-R, 1 FEB 77, WHICH MAY BE USED.

(TO BE USED ONLY AS A WORKSHEET--NOT TO BE OVERPRINTED)
U.S. GOVERNMENT PRINTING OFFICE

penetrating oil	7 - 1 qt cans
penetrating o.i	1 - 10 ^{oz} spray
CLP	1 - 1 qt can
2 cycle o.i	1 - 1 qt can
Compressor oil	2 - 1 qt cans
Denatured Alcohol	13 - 1 qt cans
Tire & Rim lube	1 - 1 qt can
GAA	14 - 6.5 lb cans
GAA	5 - 5 lb cans
WTR	5 - 5 lb cans
WTR	2 - 5 lb cans
Brake Fluid	15 - 1 qt Bottles
Brake Fluid	8 - 1 qt cans
Hydraulic Fluid OHA	3 - 1 qt cans
Hydraulic Fluid OHA	16 - 1 qt cans
Turbo shaft	24 - 1 qt cans
Sodium Bicarbonate	10 - Boxes
Sodium Bicarbonate	2 - 1 lb cans
Corrosion prevent. Compound	2 - 1 lb cans
Chalk & Card dunn	10 - 13 ^{oz} cans
Gear oil 80w90	7 - 5 lb cans
Cleaning Compound Sol.	8 - 5 lb cans
Thinner	1 - 5 lb can
Coolant	2 - 5 lb cans
15w 40	3 - 5 lb cans
HDO 10	6 - 5 lb cans
PE 10	1 - 5 lb cans
PE 50-1	1 - 5 lb cans
Isopropyl Alcohol	1 - 5 lb can
Sulfuric Acid	1 - 1 qt can

U.S. GOVERNMENT PRINTING OFFICE: 1961 - 253-122

Inventory
20 SEP 67

APPENDIX D
ANALYTICAL RESULTS

Client: National Guard Bureau
Address: 301 JH Old Bay Lane, Attn NGB-AVN-SI, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Hackettstown Amnory
Job Location: 901 Willow Grove St.
Job Number: 39741509-00401
P.O. Number: Not Provided
Chain Of Custody: 149186
Date Submitted: 2/21/2006
Person Submitting: [Redacted]
Date Analyzed: 2/22/2006
Report Date: 22-Feb-06

Attention: [Redacted]

Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0629473	0325-07	Furnace	Wipe	***	0.108	69.70 ug/ft²	98 ug/ft²	
0629474	0325-08	Furnace	Wipe	***	0.108	1394.05 ug/ft²	7100 ug/ft²	
0629475	0325-09	Furnace	Wipe	***	0.108	6.97 ug/ft²	25 ug/ft²	
0629476	0325-10	Furnace	Wipe	***	0.108	69.70 ug/ft²	< 70 ug/ft²	
0629477	0325-11	Furnace	Wipe	***	0.108	2.79 ug/ft²	31 ug/ft²	
0629478	0325-12	Furnace	Wipe	***	0.108	2.79 ug/ft²	16 ug/ft²	
0629479	0325-13	Furnace	Wipe	***	0.108	2.79 ug/ft²	24 ug/ft²	
0629480	0325-14	Furnace	Wipe Blank	***	N/A	0.30 ug	< 0.3 ug	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-311B

Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7421; Water: SM-3113B

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight mg/L = parts per million (ppm)

%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

See QC Summary for analytical results of quality control samples associated with these samples.

Analyst:

Technical Manager:

Non-Responsive

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Client: National Guard Bureau
Address: 301-4H Old Bay Lane, Attn: NGB-AVN-SI, State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Hackettstown Ammunition
Job Location: 901 Willow Grove Street
Job Number: Not Provided
P.O. Number: BPA #W912KG-04-A0002
Chain of Custody: 128490
Date Analyzed: 07/01/2004
Person Submitting: [Redacted]
Report Date: 01-Jul-04

Attention: [Redacted]

Page 1 of 1

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (BF)	Reporting Limit	Final Result	Comments
0449372	0325-01	Flame	Wipe	****	0.108	111.52 ug/R*	490 ug/R*	
0449373	0325-02	Flame	Wipe	****	0.108	111.52 ug/R*	18000 ug/R*	
0449374	0325-03	Furnace	Wipe	****	0.108	2.79 ug/R*	4.3 ug/R*	
0449375	0325-04	Furnace	Wipe	****	0.108	2.79 ug/R*	11 ug/R*	
0449376	0325-05	Furnace	Wipe	****	0.108	2.79 ug/R*	14 ug/R*	
0449377	0325-06	Furnace	Wipe	****	0.108	2.79 ug/R*	7.8 ug/R*	
0449378	0325-15	Flame	Paint Chip	****	N/A	0.01 %Pb	0.017 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 800R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 800R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight ug/L = parts per billion (ppb)
%Pb = percent lead by weight ug = micrograms
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [Redacted]

Technical Manager: [Redacted]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AMERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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APPENDIX E
TRAINING CERTIFICATES

Non-Responsive



Training Director

APPENDIX F
PHOTOGRAPHS

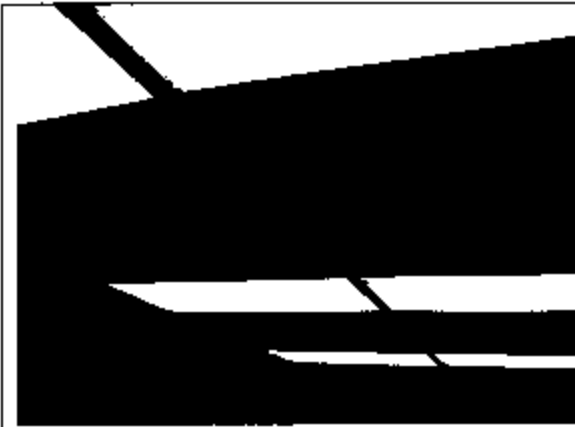


Photo 016: Training Room - Water stained ceiling tiles

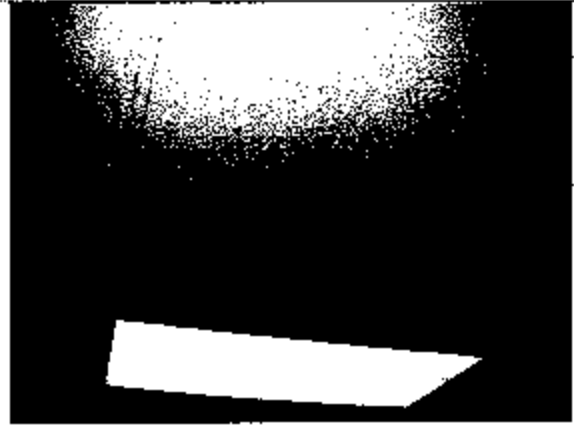


Photo 017: Rear Entry- Water stained ceiling tiles

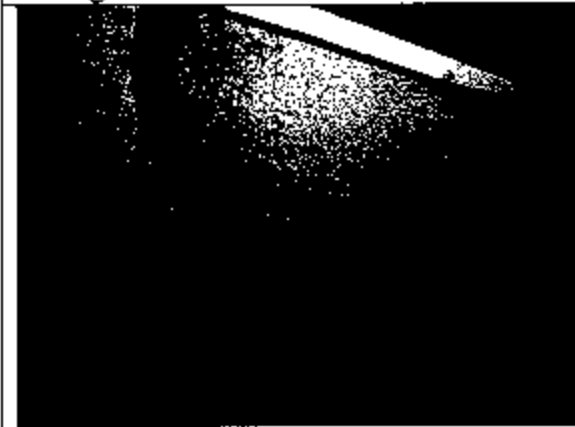


Photo 018: Room 12- Water stained ceiling tiles



APPENDIX G
RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

**POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND
OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES
(NATIONAL GUARD REGULATION 385-15, 30 DECEMBER 2002)**

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

ADDENDUM**GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING****CONTENTS (Listed by paragraph number)**

	Paragraph
Purpose	1
References	2
Explanation of Abbreviations and Terms	3
Policy and Procedures	4
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	16
Range Rehabilitation	17
Conversion of Indoor Firing Ranges	18
Deviation	19
 Appendices	
Appendix A - General Procedures for Collecting Wipe Samples	
Appendix B - Sampling Strategy for Collection of Wipe Samples	
Appendix C - Interpretation of Sample Results (Prior to Cleaning)	
Appendix D - Interpretation of Sample Results (After Cleaning)	
Appendix E - Recommended Sample Media and Containers	
Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results	
Appendix G - Surface Wipe Sample Sheet	
Appendix H - Air Sampling Sheet	
Appendix I - Glossary	

Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program)
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine)
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
- e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges)

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are listed in the glossary.

4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

- a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.
- b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same lot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of –

(a) Ghost Wipes™ (PREFERRED METHOD)– Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters with or without the cassettes.

(c) Pre-moistened, certified, and labeled wipe media.

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

(2) Unacceptable Media consists of but is not limited to—

- (a) Cotton balls
- (b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol See Appendix A.

9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

c. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

l. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

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SUBJECT: All States (Log Number P01-0076) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements.

A medical examination must include—

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually, this training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators
- d. The purpose and a description of medical surveillance program
- e. Eating and drinking are prohibited in lead contaminated areas
- f. Smoking and smoking materials will not be permitted in contaminated areas

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- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- i. The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- (1) Protective coveralls with hood and shoe covers or disposable Tyvek™ full body suit.
- (2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
- (3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

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- b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.
- c. Inspect Louvers, if applicable, to ensure they are opening fully.
- d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. Bullet Trap. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.
- f. The range ventilation system will be operational during all bullet trap cleaning procedures.
- g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.
- h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

- a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.
- b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.
- c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

- a. All ranges slated for conversion will be inspected and evaluated.
- b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.
- c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.
- d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.
- e. Light fixtures and ventilation system grills must be removed and decontaminated.
- f. Ventilation system ducts need to be decontaminated or removed and replaced.
- g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.
- h. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Arlington, VA 22204-1382

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX A
GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES**

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

**APPENDIX B
SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES**

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

**APPENDIX C
INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)**

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface. Regional Industrial Hygiene Office for specific guidance.

APPENDIX D

INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E

RECOMMENDED SAMPLE MEDIA AND CONTAINERS

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-685-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6628 800-359-3041	2-3368M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc Supelco Park Bellefonte, PA 16823	2-3381M

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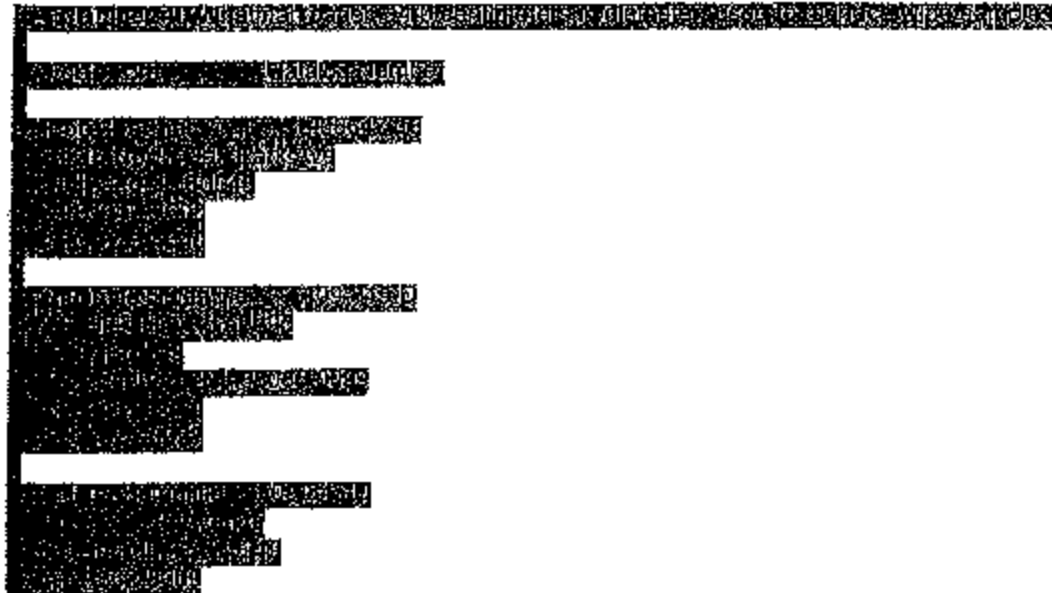
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APPENDIX E (Continued)

800-247-6628
800-359-3041

b. Millipore Corp. AAWP-037-00
Ashby Road
Bedford, MA 01730
617-275-9200
800-225-1380

c. SKC, Inc. 225-5
334 Valley View Rd.
Eighty Four, PA 15330
412-941-9701
800-752-8472



E-5. Glass container (25 milliliter) for collection and shipment of media.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

a. Pierce Chemical Co. P.O. Box 117 Rockford, IL 61105 815-966-0747 800-874-3723	13219 (screw cap)
--	-------------------

b. Alltech Associates, Inc. Applied Science Labs 2051 Waukegan Rd. Deerfield, IL 60015 312-948-6600	95321 (screw cap)
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APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

Order From Catalog Number

Environmental Express SC4200
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-7. Ghost Wipe™ Containers

Order From Catalog Number

Environmental Express SC499
490 Wando Park Blvd.
Mt. Pleasant, SC 29464
1-800-343-5319

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Deionized water can be obtained at local and state water labs or a hospital.

APPENDIX F

EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}} = \frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

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SUBJECT: All States (Log Number P01-0076) Army National Guard (ARNG) Safety and Occupational Health Program - POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility		City		State		Location (bldg/area)	
Description of Operation		Persons Exposed		Hrs/Day		Method of Collection	
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pre-Use	Post-Use					
Name of Calibrator		Calibration Date		Pump Manufacturer			
Comments to Lab.							

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX I
ABBREVIATIONS AND TERMS**

**Section I
Abbreviations**

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX I (Continued)

Section II
Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are used synonymously to describe the techniques utilized for assessing lead surface contamination.

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1215 Manor Drive, Suite 205
Mechanicsburg, PA 17055
Phone: 717.590.7031
Fax: 717.590.7936
www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility
Hackettstown Readiness Center

Prepared For: National Guard Bureau Region North IH
301-IH Old Bay Lane
Havre de Grace, MD 21078

Survey Location: Hackettstown Readiness Center
901 Willow Grove Street
Hackettstown, NJ, 07840-5099

Prepared By: Compliance Management International, Inc.
1215 Manor Drive
Suite 205
Mechanicsburg, PA 17055

Survey Date: March 14, 2013

Report Date: April 4, 2013

Non-Responsive

Senior Industrial Hygienist

Table of Contents

Section 1.0 Executive Summary	3
Section 2.0 Operation Description & Observations.....	4
Section 3.0 Lead Testing.....	5
Section 4.0 Lighting.....	7
Section 5.0 Indoor Air Quality.....	8
Section 6.0 Suspect Asbestos Containing Building Materials.....	10
Section 7.0 Equipment	11
Section 8.0 Limitations	12
Appendix A. Laboratory Analysis Report	13
Appendix B. Photographs	14
Appendix C. Floor Plan	15
Appendix D. References	16

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on March 14, 2013, at the Hackettstown Readiness Center located at 901 Willow Grove Street, Hackettstown NJ 07840. The survey was performed by Mr. Non-Responsive.

1. Lead surface and air samples were collected. Surface levels of lead were below the NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" benchmark of 200 micrograms per square foot (ug/ft^2) in all locations. Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3). See Section 3.0 for detailed findings.
2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in five locations. See Section 4.0 for detailed findings.
3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Temperature levels met the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) recommended guideline of 68-79 degrees F.
 - b. The relative humidity level was below the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in one location.
 - c. CO levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 ppm.
 - d. CO₂ levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results

4. Water-stained ceiling tiles were observed in the facility. See Section 5.0 for detailed findings.
5. No suspect asbestos containing materials (ACM) were identified in this survey. See Section 6.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Hackettstown Readiness Center is mainly an administrative facility with a drill hall, offices and classrooms, attached garage used for bulk storage, and a converted firing range area used for storage. There were approximately 3 full-time employees stationed at this facility at the time of this survey.

The building is reported to have been built in the late 1980s. It is a one-story structure. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, carpet, and 9" x 9" and 12" x 12" floor tile.

The Heating, Ventilation, and Air-Conditioning (HVAC) system consists of a fuel-fired forced hot water furnace for heat. There is one air conditioning (A/C) unit.

There is no child-care facility in the building.

Overall housekeeping practices were good.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Air ug/m ³	Surface ug/ft ²
1	Office 125	<5.7	*
2	Drill Hall	<5.6	*
3	Blank	<3	*
4	Drill Hall Floor	*	<110
5	Drill Hall Table	*	<110
6	Kitchen Mixer	*	<110
7	Converted Firing Range Floor	*	120
8	Converted Firing Range Floor Outside Entrance	*	<110
9	Converted Firing Range Contents	*	<110
10	Office 125 Supply Diffuser	*	<110
11	Exercise Room Window Sill	*	<110
12	Classroom 118	*	<110
13	Room 128 Cabinet	*	<110
14	Office 7	*	<110
15	Short Hall Heater	*	<110
-	Criteria	50	200

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **ug/ft²** = micrograms per square foot
4. **ug/m³** = micrograms per cubic meter
5. **ug** = micrograms

Sources:

1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft^2) as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of $40 \text{ ug}/\text{ft}^2$ on floors and $250 \text{ ug}/\text{ft}^2$ on windowsills should be observed. There is no child care provided at this facility.

Lead surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were below the recommended guideline of $200 \text{ ug}/\text{ft}^2$ in all locations sampled.
- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3).

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles (FC)	Recommended Lighting (FC)	Sufficient Lighting
Drill hall	30.1	10	Yes
Converted Firing Range			
Storage Bulk	21.6	10	Yes
Food Services Prep	53.3	50	Yes
Food Services Storage	28.0	5	Yes
Lobby	32.0	10	Yes
Corridor Main	39.7	5	Yes
Storage Room Bulk	33.2	10	Yes
Corridor Short	17.4	5	Yes
Boiler Room	8.5	30	No
Exercise Room	26.0	30	No
Electrical Room	36.2	30	Yes
Men's Toilet	33.8	5	Yes
Classroom 118	107.7	30-50	Yes
Women's Toilet	38.9	5	Yes
Office 128	68.0	30-50	Yes
Office 132	39.1	30	Yes
Office 7	31.7	30-50	Yes
Conference 125 Meeting	29.0	30	Yes
Library	27.5	30-50	No
Supply Vault	13.6	30	No
Storage Garage Bulk	7.2	10	No

Table Notes:

1. FC = Foot Candles
2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did not meet the minimum recommended guideline in the Boiler Room, Exercise Room, Library, Supply Vault, and Garage areas. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature ranges for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	28.0	54.7	388	0.0
Conference 125	68.1	23.7	495	0.0
Criteria	68-79	30-60	<1,088	<9

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **(%)** = percent relative humidity
4. **°F** = degrees Fahrenheit

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements met the recommended 68-79°F in occupied areas.
- Relative humidity levels were below the recommended guidelines in one sampled area. Relative humidity should be maintained at 30-60%.
- Carbon dioxide levels were measured to evaluate building ventilation or the introduction of outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level. For this survey, carbon dioxide levels did not exceed the recommended ceiling of 1,088 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - A few water-stained ceiling tiles were observed in the facility. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.

Section 6.0 Suspect Asbestos Containing Building Materials

Based on the age of the building (built in the 1980's) it is unlikely that asbestos containing materials are present in the facility. However, at the time of this survey CMI personnel did note suspect ACM in the following areas:

1. Boiler breeching in the Boiler Room (approximately 200 square feet). The material was intact and in good condition, therefore not sampled.
2. 9"x9" floor tiles in Corridors, Exercise Room, and Offices (1,000 to 2,000 square feet). The material was intact and in good condition, therefore not sampled.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	K98364	4/2012	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	3/14/13	2.49 LPM
SKC Air Sampling Pump	647610	3/14/13	2.53 LPM

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	3KNJ	Chain Of Custody:	515352
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Hackettstown	Date Submitted:	3/18/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	3/20/2013
Attention:	Non-Responsive			Report Date:	3/25/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Total ug	Final Result	Comments
13045348	1	Flame	Air	523	N/A	5.7 ug/m³	<3	<5.7 ug/m³	
13045349	2	Flame	Air	531	N/A	5.6 ug/m³	<3	<5.6 ug/m³	
13045350	3	Flame	Air Blank	0	N/A	3 ug/m³		<3 ug	
13045351	4	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045352	5	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045353	6	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045354	7	Flame	Wipe	****	0.108	110 ug/ft²	13	120 ug/ft²	
13045355	8	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045356	9	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045357	10	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045358	11	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045359	12	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045360	13	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045361	14	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	
13045362	15	Flame	Wipe	****	0.108	110 ug/ft²	<12	<110 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	3KNJ	Chain Of Custody:	515352
Address:	301-JH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Hackettstown	Date Submitted:	3/18/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	3/20/2013
Attention:	Non-Responsive			Report Date:	3/25/2013

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7010; Water: SM-3113B N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm) %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb) Note: All samples were received in good condition unless otherwise noted. Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. Air and Wipe results are not corrected for any blank results Final results for air and wipe samples are based on client supplied information nor verified by this laboratory. All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.							See QC Summary for analytical results of quality control samples associated with these samples.		
Analysis							Non-Responsive		
Technical Manager							Non-Responsive		

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

515352

**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

(Please Refer To
Number For Inquiries)**CHAIN OF CUSTODY****Mailing/Billing Information:**

1. Client Name: National Guard Bureau
2. Address 1: 301-1H Old Bay Lane
3. Address 2: Attn: NGB-ARS-IHNE
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. Job Name: 3KNJ
2. Job Location: Hackettstown
3. Job #: W912K6-09-A-0003
4. Contact Person: Non-Responsive @ phone # (410) 942-0273
5. Submitted by: Signature

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		NOVEMBER BUSINESS HOURS <input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Next Day <u>New</u> <input type="checkbox"/> 2 Day Date Due: <u>3/25/13</u>		<input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day + <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REPORT TO: With Report: <u>Non-Responsive</u> <input type="checkbox"/> Fax: <u>complianceplace.com</u> <input type="checkbox"/> Ver: <u>us.army.mil</u>	
--	--	---	--	---	--	---	--

Asbestos Analysis

PCM Air - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)

PLM Bulk

- ☐ EPA 600 - Visual Estimate (QTY)
☐ EPA Point Count (QTY)
☐ NY State Friable 198.1 (QTY)
☐ Grav. Reduction ELAP 198.6 (QTY)
☐ Other (specify) (QTY)

MISC

- ☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield (QTY)
☐ NY State PLM/TEM (QTY)
☐ Residual Ash (QTY)

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY)
☐ Quan. (s/area) Vacuum D5755-95 (QTY)
☐ Quan. (s/area) Dust D6480-99 (QTY)

TEM Water

- ☐ Qual. (pres/abs) (QTY)
☐ ELAP 198.2/EPA 100.2 (QTY)
☐ EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted.
 (TEM Water samples °C)

Metals Analysis

- ☐ Pb Paint Chip (QTY)
☒ Pb Dust Wipe (wipe type cdtost) 12 (QTY)
☒ Pb Air 3 (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media) (QTY)

Fungal Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) ☐ Surface Vacuum Dust (QTY)
☐ Surface Swab (QTY) ☐ Culturable ID Genus (Media) (QTY)
☐ Surface Tape (QTY) ☐ Culturable ID Species (Media) (QTY)
☐ Other (Specify) (QTY)

CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
1	office 125	3/14/13	523																
2	Drill Hall		531																
3	blank																		
4	Drill Hall FLOOR			100cm ²															
5	Drill Hall TABLE																		
6	Kitchen MIXER																		
7	CFR FLOOR																		
8	CFR FLOOR OUTSIDE ENT																		
9	CFR CONTENTS																		
10	OFFICE 125 SUP DIFF																		
11	EXERCISE ROOM W-ELL																		
12	C.R 118 HEATER																		

LABORATORY

STAFF ONLY

 Posted to NGB FOIA Reading Room
 May 2018
1. Date/Time RCVD: 3/18/13 @ 945 Via: FEDEX By (Print):2. Date/Time Analyzed: ____/____/____ @ ____ By (Print): ____ Sign: Non-Responsive

3. Date/Time Analyzed: ____/____/____

4. Comments: 7945 6135 6705

BEST AVAILABLE COPY

Date: ____/____/____

FOIA Requested Record #15-0085 (NH)

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CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

515352

2 of 2

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-1H Old Bay Lane
3. Address 2: Attn: NGB-ARS-IHNF
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. [Redacted] 3K NJ
2. [Redacted] Hackettsfown
3. Job #: _____ DO #: W912K6-09-A-0003
4. Contact Per **Non-Responsive** @ phone # (410) 942-0273
5. [Redacted] [Redacted]

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled)

☐ Immediate Date Due: _____

☐ 24 Hours Time Due: _____

Comments: _____

☐ Immediate
☒ Next Day
☐ 2 Day

☐ 3 Day
☐ 5 Day +
Date Due: _____

☐ Results Required By Noon
(Every Attempt Will Be
Made to Accomodate)

REPORT TO:

☒ Incomplete Report

☒ **Non-Responsive** compliance@ace.com

☐ Fax us.army.mil

☐ Via us.army.mil

Asbestos analysis

PCMAir - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY)
☐ Fiberglass (QTY)
 TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY)
☐ NIOSH 7402 (QTY)
☐ Other (specify) (QTY)

PLM Bulk

☐ EPA 600 - Visual Estimate _____ (QTY)
☐ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify) _____ (QTY)

MISC

☐ Vermiculite
☐ Asbestos Soil PLM__ (Qual) PLM__ (Qual) PLM/TEM__ (Qual) PLM/TEM__ (Qual)

TEM Bulk

☐ ELAP 198.4/Chatfield _____ (QTY)
☐ NY State PLM/TEM _____ (QTY)
☐ Residual Ash _____ (QTY)

TEM Dust

☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)
☐ Quan. (s/area) Dust D6480-99 _____ (QTY)

TEM Water

☐ Qual. (pres/abs) _____ (QTY)
☐ ELAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

☐ All samples received in good condition unless otherwise noted.
(TEM Water samples _____ °C)

Metals Analysis

☐ Pb Paint Chip _____ (QTY)
☒ Pb Dust Wipe (wipe type Ghost) 12 (QTY)
☒ Pb Air 2 (QTY)
☐ Pb Soil/Solid _____ (QTY)
☐ Pb TCLP _____ (QTY)
☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
☐ Pb Furnace (Media _____) _____ (QTY)

Principal analysis

Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media _____

<input type="checkbox"/> Spore-Trap _____ (QTY) _____	<input type="checkbox"/> Surface Vacuum Dust _____ (QTY) _____
<input type="checkbox"/> Surface Swab _____ (QTY) _____	<input type="checkbox"/> Cultureable ID Genus (Media _____) _____ (QTY) _____
<input type="checkbox"/> Surface Tape _____ (QTY) _____	<input type="checkbox"/> Cultureable ID Species (Media _____) _____ (QTY) _____
<input type="checkbox"/> Other (Specify _____) _____ (QTY) _____	

CLIENT CONTACT

(LABORATORY STAFF ONLY)

[illegible]

LABORATORY
STAFF ONLY:

1. Date/Time RCVD: ____/____/____ @ ____ Via: _____ By (Print): _____ Sign: _____

2. Date/Time Analyzed: ____/____/____ @ ____ By (Print): _____ Sign: _____

3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____ Time: _____ Initials: _____

Reading Room
1 Comment:

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May, 2018

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Time: _____ Initials: _____
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Page 485 of 1660

Appendix B. Photographs



Hackettstown Armory Front



Converted Firing Range Storage



Suspect ACM Floor Tiles



Suspect ACM Boiler Breech Material



Water Stained Ceiling Tiles



Attached Parking/Storage Garage

Appendix C. Floor Plan

LEGEND

1. CLASS RM. #1
2. CLASS RM. #2
3. CLASS RM. #3
4. OIL STORE RM.
5. ELECTRICAL RM.
6. WASH RM.
7. RECRUITER'S OFFICE
8. ARMORER'S OFFICE
9. STATION CHIEF'S OFFICE
10. LADIES RM.
11. MEN'S RM.
12. NO OFFICE
13. ADULTERY STORE RM.
14. COOK'S OFFICE
15. LBN. OFFICE
16. TRAINING AID RM.

EMERGENCY ROUTE

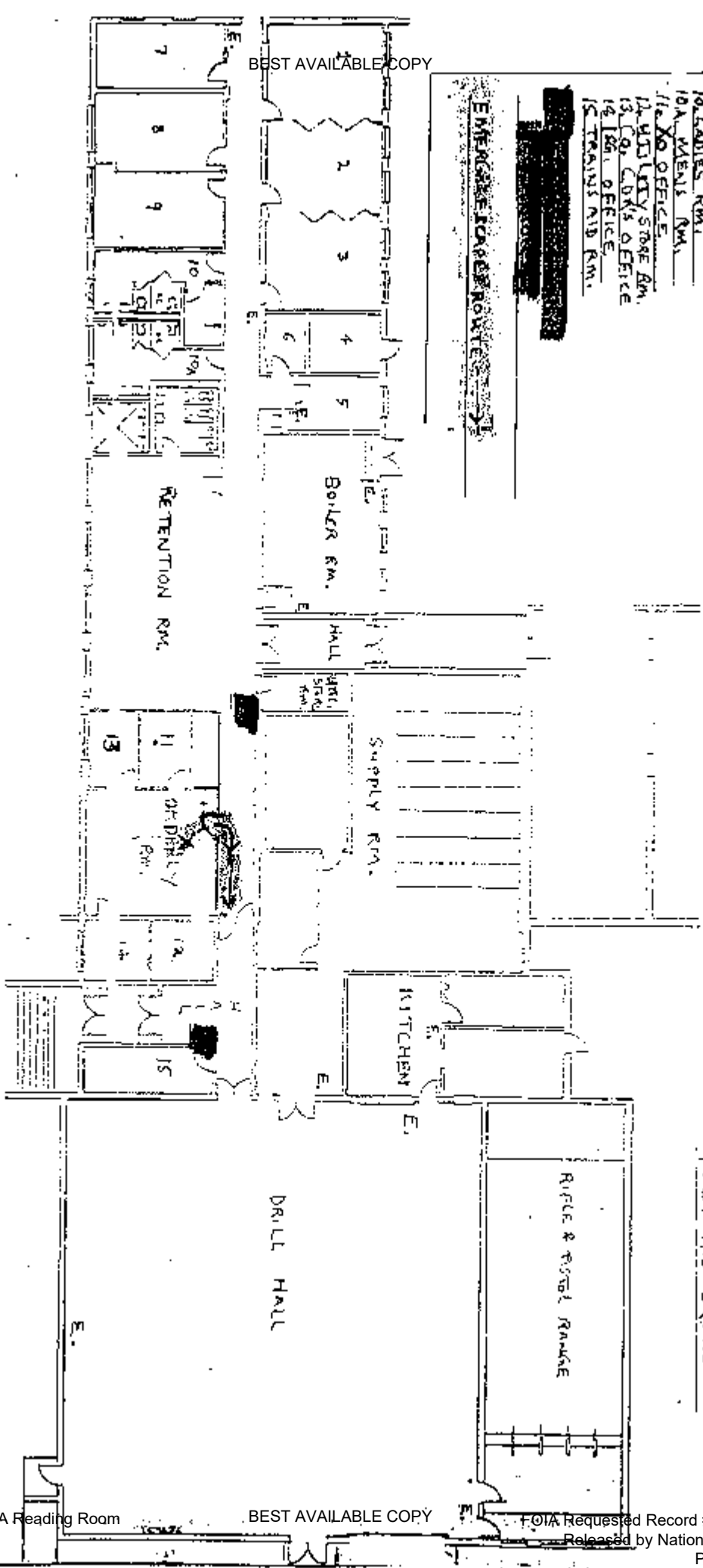
FIRE EVACUATION PLAN

HACKETT STOWN ARMORY

POLICE DEPT. 908-852-3300

FIRE DEPT.

FIRST AID SQUAD



NEW JERSEY DEPARTMENT OF MILITARY AND VETERANS' AFFAIRS + ENGINEERING BUREAU			
SHEET TITLE		SHEET NO.	
FLOOR PLAN		1	
PROJECT DATE		DATE	
10/10/1911		10/10/1911	
2nd Edition of 10/10/1911		10/10/1911	
DATE		CHECKED BY	
10/10/1911		10/10/1911	

Appendix D. References

1. Title 29 Code of Federal Regulations (CFR), Part 1910.1025, Occupational Safety and Health Administration, Occupational Exposure to Lead.
2. American Conference of Governmental Industrial Hygienists (ACGIH) – Threshold Limit Values and Biological Exposure Indices, 2011 Edition.
3. Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition.
4. American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Ventilation for Acceptable Indoor Air Quality, 62.1-2010.
5. RP-1-2004, Industrial Lighting, Illuminating Engineering Society of North America/ANSI.
6. RP-7-2001, Industrial Lighting, Illuminating Engineering Society of North America/ANSI.
7. National Emission Standard Hazardous Air Pollutants (NESHAP) – The standards for asbestos are contained in 40 CFR 61.140 through 61.157.
8. National Ambient Air Quality Standards (NAAQS) - National primary ambient air quality standards for carbon monoxide 40 CFR 50.8.
9. Environmental Protection Agency (EPA) standards [40 Code of Federal Regulations (CFR) 745.227(h) (3)].
10. Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM).
11. The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, February 2002.
12. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges, 3 Nov 06.
13. ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Thermal Environmental Conditions for Human Occupancy, 55-2010.

Prepared For:

National Guard Bureau
Army National Guard
Region North Industrial Hygiene Office
301 – IH Old Bay Lane
Havre De Grace, Maryland 21078

Prepared By:

URS Corporation
5 Industrial Way
Salem, New Hampshire 03079

FINAL
INDUSTRIAL HYGIENE SURVEY REPORT
JERSEY CITY ARMORY
678 MONTGOMERY STREET
JERSEY CITY, NEW JERSEY

March 2006
PN: 39741509

Non-Responsive

Office Manager

Non-Responsive

Project Manager

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1
2.0 ADMINISTRATIVE AREA	2
2.1 OPERATION DESCRIPTION.....	2
2.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	2
2.2.1 Relative Humidity.....	2
2.2.2 Carbon Dioxide.....	3
2.2.3 Carbon Monoxide	3
2.2.4 Lighting	4
2.2.5 Lead.....	5
2.2.6 Asbestos.....	7
2.3 VENTILATION SYSTEM EVALUATION	7
2.4 NOISE MEASUREMENTS.....	7
2.5 PERSONAL PROTECTIVE EQUIPMENT.....	7
2.6 INTERPRETATION OF RESULTS	7
3.0 FORMER FIRING RANGE	9
3.1 OPERATION DESCRIPTION.....	9
3.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	9
3.2.1 Lead.....	9
3.3 VENTILATION SYSTEM EVALUATION	9
3.4 NOISE MEASUREMENTS.....	9
3.5 PERSONAL PROTECTIVE EQUIPMENT.....	9
3.6 INTERPRETATION OF RESULTS	9
4.0 DRILL HALL.....	11
4.1 OPERATION DESCRIPTION.....	11
4.2 CHEMICAL AND PHYSICAL AGENTS SAMPLED.....	11
4.2.1 Lead.....	11
4.3 VENTILATION SYSTEM EVALUATION	11
4.4 NOISE MEASUREMENTS.....	11
4.5 PERSONAL PROTECTIVE EQUIPMENT.....	11
4.6 INTERPRETATION OF RESULTS	12
5.0 BOILER ROOM.....	13
5.1 OPERATION DESCRIPTION.....	13
6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS	14
6.1 CONFINED SPACES.....	14
6.2 HEARING CONSERVATION	14
6.3 RESPIRATORY PROTECTION.....	14
6.4 HAZARD COMMUNICATION	14
6.5 PERSONAL PROTECTIVE EQUIPMENT.....	14
7.0 REFERENCES	15

APPENDICES

APPENDIX A	ARMORY DRAWING
APPENDIX B	PERSONNEL LIST
APPENDIX C	HAZARDOUS MATERIALS LIST
APPENDIX D	ANALYTICAL RESULTS
APPENDIX E	TRAINING CERTIFICATES
APPENDIX F	PHOTOGRAPHS
APPENDIX G	RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES
APPENDIX H	POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15, 30 DECEMBER 2002)

FINDINGS AND RECOMMENDATIONS

Findings	Recommendation	Risk Assessment Code
Lighting		
On the day of the survey, the illuminance in the administrative area was inadequate in several offices.	Increase lighting in the administrative areas. While work is in progress, the administrative area shall be lighted by at least the minimum lighting intensities (ANSI / IESNA RP-1-04)	RAC 4
Lead		
Lead was detected in wipe samples collected in the administrative areas, the drill hall, and the former firing range.	Personnel trained in accordance with the OSHA Lead Standard should clean the drill hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025(h)(1))	RAC 4
Asbestos		
No site specific asbestos operations and maintenance plan available.	Develop a site specific asbestos operations and maintenance plan to manage asbestos-containing materials (OSHA 29 CFR 1910.1001(j))	RAC 3
Hazard Communication		
No site specific hazard communication plan available.	Develop a site specific hazard communication plan to manage hazardous materials (OSHA 29 CFR 1910.1200(e))	RAC 4
Mold		
Watermarks were observed on the ceiling tiles. Mold growth could become an issue if left unattended.	Determine and repair source of water, Replace water damaged building materials and implement a moisture management program to provide direction for future water incursions (Best management practice)	RAC 4
Ergonomic		
Computer work stations were observed with fixed chairs, armrests, keyboards and monitors.	Ergonomic issues with the desks and chairs should be corrected by fitting the workplace to the worker (DoD, OSHA General Duty)	RAC 3

1.0 SUMMARY

At the request of the National Guard Bureau (NGB) Region North Industrial Hygiene Office, URS Corporation (URS) conducted an industrial hygiene survey at the Armory located at 678 Montgomery Street in Jersey City, New Jersey 07306. This report includes an executive summary, a description of the survey protocol, a discussion of the survey evaluation and findings and a list of conclusions and recommendations.

On April 7, 2004, **Non-Responsive** an industrial hygienist with URS, conducted a site visit to the Armory in Jersey City, New Jersey. The purpose of this site visit was to conduct an industrial hygiene survey, which included the collection of air samples, bulk samples, lighting measurements, and a review of site health and safety procedures. Mr. **Non-Responsive** of the State of New Jersey was Ms. **Non-Responsive** site contact for this survey.

An armory layout drawing of the facility, which shows the locations where measurements were made during this survey, is contained in Appendix A.

2.0 ADMINISTRATIVE AREA

2.1 Operation Description

This building area contains multiple offices located throughout the building with desks and computer workstations. Computer workstations were assessed during the walkthrough for ergonomic issues. Computer workstation chairs and armrests were in a fixed position and keyboards could not be adjusted in several locations including Room 7 - D Co. Office (Photo # 13). Computer monitors could not be adjusted for different individuals working at the workstations. If more than one person is using that station, then proper adjustments need to be made to accommodate each person.

Water marks on the ceiling or damaged plaster was observed in several locations including the Drill Hall, Weight Room (Photo # 9), Women's Room (Photo # 6), and Room 7 - D Co. Office (Photos # 12 & 14) indicate the potential for mold growth.

There is 9" x 9" brown floor tile in locations throughout the Armory (Photo # 11). According to the armorer, this tile is asbestos-containing and has been removed from various locations including the basement hallway. There were abatement records found in the armorer's office for this abatement, as well as for abatement of pipe insulation in the Drill Hall and abatement of floor tile in the Supply Room.

There was a Right to Know Center located in the Garage; however, there was only a sign and no Material Safety Data Sheets (Photo # 19). Also, in the Garage, there was broken ductwork (Photo # 18).

2.2 Chemical and Physical Agents Sampled

2.2.1 Relative Humidity

Relative humidity levels were measured using a TSI Q-Track (Model 8551). Relative humidity on the day of the survey ranged from 20% to 21% with an average of 21%. This average reading was below the maximum level of 65% set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ANSI / ASHRAE Standard 62.1-2004).

2.2.2 Carbon Dioxide

On the day of the survey, carbon dioxide measurements were made at various locations throughout the Armory. Carbon dioxide concentrations ranged from 584 to 741 parts per million (ppm), with an average of 648 ppm. Carbon dioxide levels were measured using a direct-reading TSI Q-Track (Model 8551).

Carbon dioxide is a normal constituent of the atmosphere and ranges from about 250 to 450 ppm. The major source of excess carbon dioxide in the indoor environment is people. Other sources can include open-flame heaters, fermentation processes, and motor vehicles. Carbon dioxide itself is not normally a cause of indoor air quality problems because concentrations must exceed 5,000 to 10,000 ppm before health effects such as headache, drowsiness, and increased respiration are noted. Typically, carbon dioxide is used as an indicator of the adequacy of fresh air intake. As the concentration of carbon dioxide increases, so do the background levels of other air contaminants.

ASHRAE recommends that levels of carbon dioxide be maintained below 700 ppm above the outside level. Given an outside level of 495 ppm on the day of the survey, the ASHRAE limit would be 1195 ppm.

2.2.3 Carbon Monoxide

Carbon monoxide was also measured in the Armory. Carbon monoxide concentrations remained at 0 parts per million (ppm) throughout the survey period. The measured level was below the ASHRAE guideline for indoor environments. Carbon monoxide was measured using a TSI Q-Track (Model 8551).

Key sources of carbon monoxide within indoor environments include internal combustion engines, motor vehicle and forklift exhaust, tobacco smoke, space heaters, and improperly adjusted oil or gas burners. Health effects from exposure to elevated concentrations of carbon monoxide may include fatigue, impairment of visual acuity,

irregular heartbeat, headache, nausea, and confusion. ASHRAE recommends that average carbon monoxide concentrations not exceed 9 ppm. Typical average concentrations found in commercial buildings range from 0 to 6 ppm.

2.2.4 Lighting

Lighting in the administrative area was measured using a Sper Scientific Ltd. Light Meter (Model 840020C). Table 2-1 below shows lighting measurements and the recommended lighting requirement (ANSI/IESNA RP-1-04 American National Standard Practice for Office Lighting)

Table 2-1
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Illuminance (lux / foot candles)
Basement Dining Area	Dining Room	93 / 9	500 / 50
Kitchen	Kitchen	964 / 90	500 / 50
Room 9 – Kitchen Storage	Supply Area	69 / 6	300 / 30
Storage Rooms 26/28	Supply Area	39 / 4	300 / 30
Room 25 – Unit Supply	Supply Area	49 / 5	300 / 30
Room 23 – Storage	Supply Area	75 / 7	300 / 30
Room 21 – EVAC Platoon Storage	Supply Area	112 / 10	300 / 30
DMSO Section Area	Supply Area	101 / 9	300 / 30
Room 20 – Storage	Supply Area	34 / 3	300 / 30
Room 15 – Parts Room	Supply Area	48 / 4	300 / 30
Room 18 – Storage	Supply Area	103 / 10	300 / 30
Civ. Div. Storage Room	Supply Area	86 / 8	300 / 30
Armorer's Office	Administrative Duties	295 / 27	500 / 50
Recruiting Office	Administrative Duties	343 / 32	500 / 50
Co. E 50 th MSB Office	Administrative Duties	250 / 23	500 / 50
Main Office	Administrative Duties	124 / 12	500 / 50
Family Support Center Office	Administrative Duties	231 / 21	500 / 50
Family Support Center	Administrative Duties	189 / 18	500 / 50

Table 2-1 (Cont)
Lighting Measurements and Recommended Lighting Requirements

Location	Function	Measured Illuminance (lux / foot candles)	Recommended Illuminance (lux / foot candles)
Pantry Storage	Supply Area	220 / 20	500 / 50
Entryway – North End	Accessway	85 / 8	30 / 3
Weight Room	Fitness Room	33 / 3	500 / 50
Training Room	Learning Center	129 / 12	500 / 50
Room 11 - D Co. Training	Learning Center	247 / 23	500 / 50
D Co. Office	Administrative Duties	151 / 14	500 / 50
D Co. Commander's Office	Administrative Duties	191 / 18	500 / 50
Room 7 – D Co. Office	Administrative Duties	114 / 11	500 / 50
Room 6	Administrative Duties	120 / 11	500 / 50
Conference Room 5	Administrative Duties	87 / 8	500 / 50
1 st Sergeant Office	Administrative Duties	425 / 39	500 / 50
Room 3	Administrative Duties	414 / 38	500 / 50
2 nd Floor South End Office	Administrative Duties	135 / 13	500 / 50

On the day of the survey the illuminance in the administrative area was inadequate in several offices.

2.2.5 Lead

One paint chip sample was collected in an area where paint was peeling and sent to AMA Analytical Services, Inc. (AMA) for analysis. The sample was found to contain lead in a concentration below the U.S. Housing and Urban Development (HUD) Lead-Based Paint Guidelines. Levels of lead greater than 0.5% by weight are referred to as "lead-containing" (Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (also referred to as Title X)). Table 2-2 below shows the results of the lead paint testing.

Table 2-2
Level of Lead in Paint Found in the Administrative Area

Sample Location	URS Sample Number	Reporting Limit (% by Weight)	Final Result (% by Weight)
Hallway Outside Former Firing Range	PC-01	0.01	<0.011

The analytical report from AMA is contained in Appendix D.

Wipe testing for lead dust was conducted in the administrative area using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 2-3 below shows the results of the lead sampling.

Table 2-3
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
CIV/DIF Store Room – Cabinet	WS-01	0.111	4300	200
Room 15 – Parts Room – Cabinet	WS-02	0.111	170	200
Room 25 – Unit Supply – Cabinet	WS-03	0.111	360	200
Store Rooms 26/28 – Shelf	WS-04	0.111	89	200
Dining Area – Pipe	WS-05	0.111	780	200
Radio Storage Room – Shelf	WS-06	0.111	88	200
Garage – Floor	WS-07	0.111	1100	200
Family Support Center Office – Windowsill	WS-10	0.111	170	200
Hall Outside Armorer's Office – Water Fountain	WS-11	0.111	51	200
Laundry Room – Water Heater	WS-12	0.111	130	200
Armory Club/Training Room – Windowsill	WS-13	0.111	240	200

Table 2-3 (Cont)
Levels of Lead Dust Found in the Administrative Area

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
2 nd Floor Women's Room – Radiator	WS-14	0.111	21	200
Room 11 D Co. Training Room	WS-15	0.111	85	200
Conference Room 5 – Windowsill	WS-16	0.111	380	200
3 rd Floor Electrical Room – Stair	RWS-01	0.111	750	200
1 st Floor Women's Room – Radiator	RWS-02	0.111	24	200
2 nd Floor Balcony – Ledge	RWS-03	0.111	340	200
Room 6 – Balcony	RWS-04	0.111	74	200
Hall Outside Former Firing Range – Floor	RWS-05	0.111	1500	200

2.2.6 Asbestos

Not applicable to this operation.

2.3 Ventilation System Evaluation

Not applicable to this operation.

2.4 Noise Measurements

Not applicable to this operation.

2.5 Personal Protective Equipment

Not applicable to this operation.

2.6 Interpretation of Results

GENERAL: In general, the administrative area was neat and orderly. The fire exits and extinguishers were marked and easily accessible.

ERGONOMICS: The ergonomic issues with the desks, chairs and monitors need to be corrected by fitting the workplace to the workers.

LIGHTING: On the day of the survey, the illuminance in the administrative area was inadequate in several offices. URS recommends increasing lighting in those administrative areas. While work is in progress the administrative area must be lighted by at least the minimum light intensities.

LEAD: The one paint chip sample collected in the hallway outside the former firing range was found to not contain lead. Nine of the nineteen surface wipe samples collected in the administrative areas were found to contain lead dust levels above the maximum limit set by the National Guard Bureau Region North IH Office (See Appendix G). URS recommends cleaning the administrative area where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025).

MOLD: The water stains on the ceilings could lead to mold problems if not addressed.

3.0 FORMER FIRING RANGE

3.1 Operation Description

The firing range has been dismantled and this building area is now primarily used for storage.

3.2 Chemical and Physical Agents Sampled

3.2.1 Lead

Wipe testing for lead was conducted in the former firing range using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 3-1 below shows the results of the lead sampling.

**Table 3-1
Levels of Lead Dust Found in the Former Firing Range**

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Former Firing Range-Cabinet	FR-01	0.111	1000	200
Former Firing Range-Floor	FR-02	0.111	18,000	200
Former Firing Range-Floor	FR-03	0.111	46,000	200
Former Firing Range-Box	FR-04	0.111	300	200
Former Firing Range-Floor	FR-05	0.111	3300	200

3.3 Ventilation System Evaluation

Not applicable to this operation.

3.4 Noise Measurements

Not applicable to this operation.

3.5 Personal Protective Equipment

Not applicable to this operation.

3.6 Interpretation of Results

LEAD: The five surface wipe samples in the former firing range were found to contain lead dust levels above the maximum limit set by the National Guard Bureau Region North IH Office (See Appendix G). URS recommends cleaning the former firing range where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025). Guidance for the cleaning and rehabilitation of indoor firing ranges is provided in Appendix H.

4.0 DRILL HALL

4.1 Operation Description

The drill hall is a large space used for assembling personnel and also used as a gymnasium for community activities for children. The walls are constructed of cinder-block and brick with a hardwood floor.

4.2 Chemical and Physical Agents Sampled

4.2.1 Lead

Wipe testing for lead dust was conducted in the drill hall using ghost wipes, which meet ASTM E 1792 standards. The analytical report from AMA is contained in Appendix D. Table 4-1 below shows the results of the lead sampling.

Table 4-1
Levels of Lead Dust Found in the Drill Hall

Sample Location	URS Sample Number	Area Wiped (ft ²)	Result (µg/ft ²)	Maximum Surface Contamination Level (µg/ft ²)
Drill Hall – Videogame	WS-08	0.111	110	200
Drill Hall – Cabinet	WS-09	0.111	1500	200

4.3 Ventilation System Evaluation

Not applicable to this operation.

4.4 Noise Measurements

Not applicable to this operation.

4.5 Personal Protective Equipment

Not applicable to this operation.

4.6 Interpretation of Results

LEAD: The wipe sample collected from the cabinet in the drill hall was found to contain lead above the level recommended by the NGB Region North IH Office. URS recommends cleaning the drill hall where lead was detected in quantities of greater than 200 micrograms per square foot (OSHA 29 CFR 1910.1025).

5.0 BOILER ROOM

5.1 Operation Description

The boiler room was not accessible at the time of the site visit.

6.0 SAFETY AND INDUSTRIAL HYGIENE PROGRAMS

6.1 Confined Spaces

No safety program was found regarding confined spaces. No training records were found on site. A confined spaces program is required for this site with a confined space behind the old bullet trap of the former firing range.

6.2 Hearing Conservation

No safety program was found regarding hearing conservation. No training records were found on site. A hearing conservation program is not required for this site.

6.3 Respiratory Protection

No safety program was found regarding respiratory protection. No training records were found on site. A respiratory protection program is not required for this site.

6.4 Hazard Communication

No program was found regarding hazard communication. No training records were found on site. A site-specific hazard communication program is required for this site and should include communication of hazards to employees, management of material safety data sheets, chemical labeling and spill protection.

6.5 Personal Protective Equipment

No safety program was found regarding personal protective equipment. No training records were found on site. A personal protective equipment program is not required for this site.

7.0 REFERENCES

American National Standards Institute

ANSI/IESNA RP-1-04: American National Standard Practice for Office Lighting

American Society of Heating Refrigerating and Air-Conditioning Engineers

ANSI/ASHRAE Standard 62.1-2004: Ventilation for Acceptable Indoor Air Quality
Department of the Army

Ergonomics Program Pamphlet 40-21 (15 August 2003)

Policy and Responsibilities For Inspection, Evaluation and Operation of Army
National Guard Indoor Firing Ranges (National Guard Regulation 385-15, 30
December 2002)

Department of Defense

DoD Hearing Conservation Program Standard 6055.12 April 1996

Creating an Ideal Workstation: A Step-by-Step Guide

U. S. Environmental Protection Agency

Asbestos Hazard Emergency Response Act (40 CFR Part 763)

National Emissions Standards for Hazardous Pollutants (40 CFR Part 61)

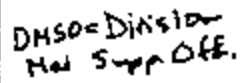
U. S. Housing and Urban Development

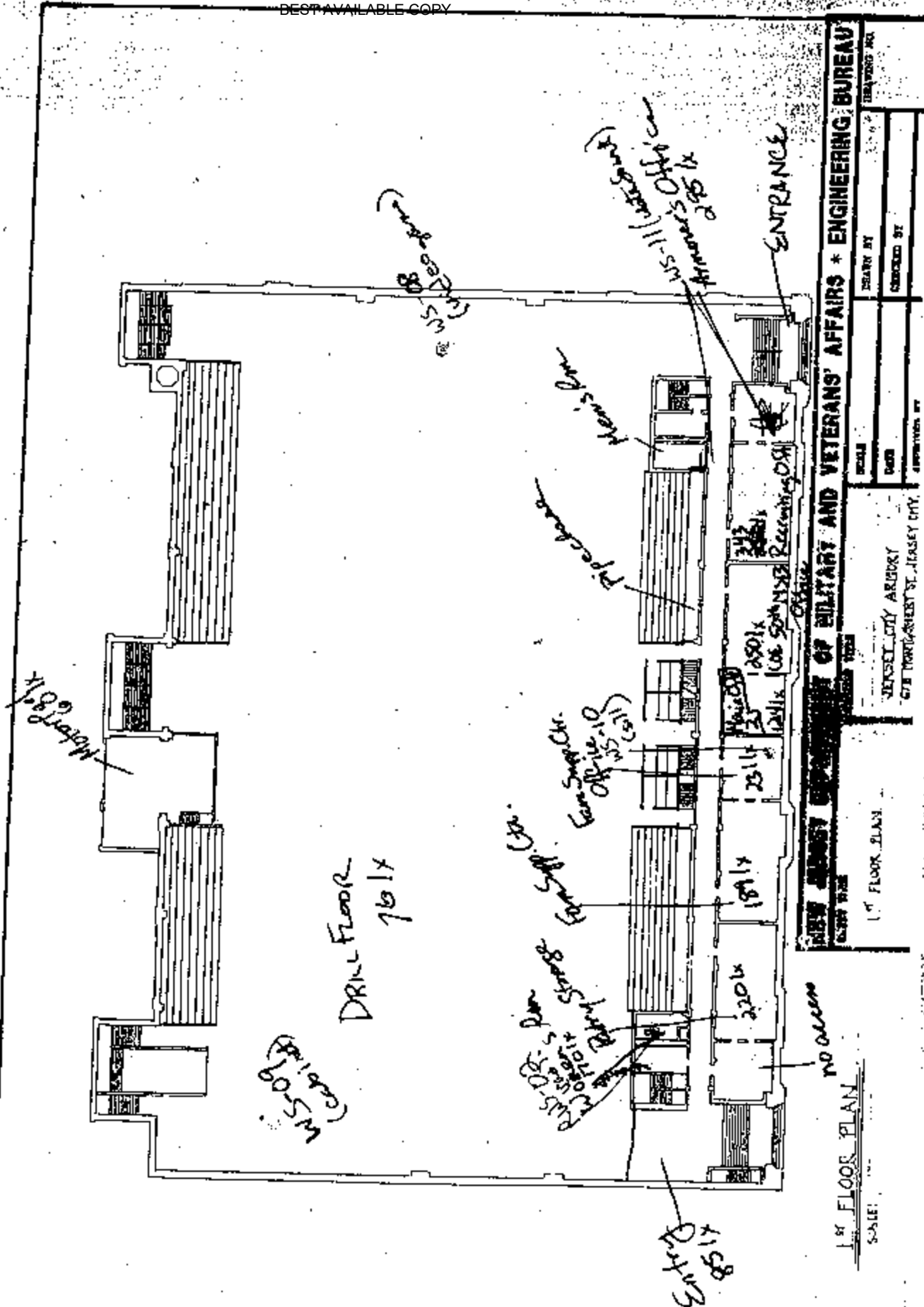
Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in
Housing (1995, 1997)

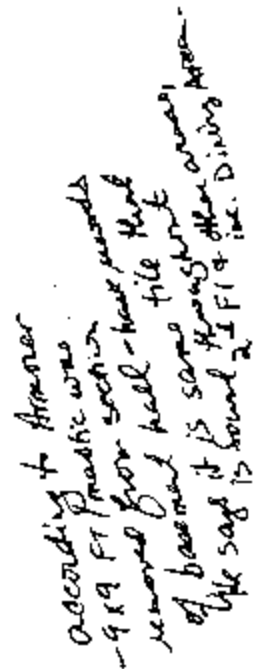
U. S. Occupational Safety and Health Administration

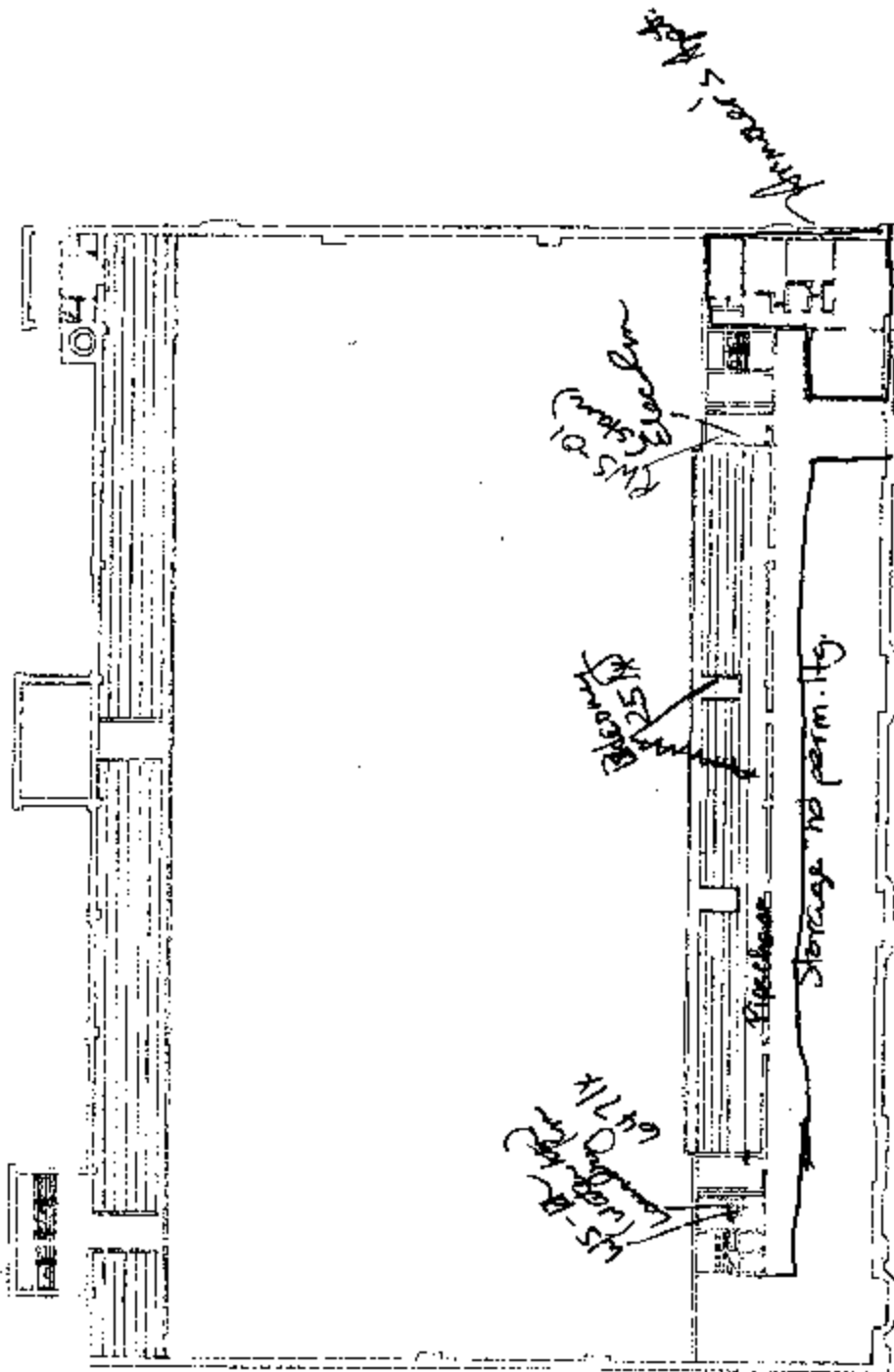
Standard for General Industry: 29 CFR 1910

APPENDIX A
ARMORY DRAWING









NEW JERSEY DEPARTMENT OF MILITARY AND VETERANS AFFAIRS * MEMORANDUM	
DATE: 10/1/80	BY: [Signature]
TO: [Signature]	FROM: [Signature]
SUBJECT: 3 RD FLOOR PLAN	LOCATION: JERSEY CITY ARMYORY 678 MONTGOMERY ST., JERSEY CITY
SCALE: 1" = 10'	DATE: 10/1/80

APPENDIX B
PERSONNEL LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX C
HAZARDOUS MATERIALS LIST

BEST AVAILABLE COPY

NOT PROVIDED

APPENDIX D
ANALYTICAL RESULTS

CERTIFICATE OF ANALYSIS

NVLAP
NY ELAP
AIHA

Posted to NGB FOIA Reading Room
May, 2018

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078
Job Name: Armory
Job Location: Jersey City, NJ
Chain Of Custody: 128451
Date Analyzed: 6/10/2004
Job Number: Not Provided
P.O. Number: BPA #W912KG-04-A0002
Person Submitting: [REDACTED]
Report Date: 07-Jul-04

Attention: [REDACTED]

Page 1 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft²)	Reporting Limit	Final Result	Comments
0448467	WS-01	Flame	Wipe	****	0.111	126.01 ug/ft²	4300 ug/ft²	
0448468	WS-02	Furnace	Wipe	****	0.111	78.76 ug/ft²	170 ug/ft²	
0448469	WS-03	Flame	Wipe	****	0.111	126.01 ug/ft²	360 ug/ft²	
0448470	WS-04	Furnace	Wipe	****	0.111	39.38 ug/ft²	89 ug/ft²	
0448471	WS-05	Flame	Wipe	****	0.111	126.01 ug/ft²	780 ug/ft²	
0448472	WS-06	Furnace	Wipe	****	0.111	39.38 ug/ft²	88 ug/ft²	
0448473	WS-07	Flame	Wipe	****	0.111	126.01 ug/ft²	1100 ug/ft²	
0448474	WS-08	Furnace	Wipe	****	0.111	39.38 ug/ft²	110 ug/ft²	
0448475	WS-09	Flame	Wipe	****	0.111	126.01 ug/ft²	1500 ug/ft²	
0448476	WS-10	Furnace	Wipe	****	0.111	39.38 ug/ft²	170 ug/ft²	
0448477	WS-11	Flame	Wipe	****	0.111	7.88 ug/ft²	51 ug/ft²	
0448478	WS-12	Furnace	Wipe	****	0.111	39.38 ug/ft²	130 ug/ft²	
0448479	WS-13	Flame	Wipe	****	0.111	78.76 ug/ft²	240 ug/ft²	
0448480	WS-14	Furnace	Wipe	****	0.111	3.15 ug/ft²	21 ug/ft²	
0448481	WS-15	Flame	Wipe	****	0.111	15.75 ug/ft²	85 ug/ft²	
0448482	WS-16	Furnace	Wipe	****	0.111	126.01 ug/ft²	380 ug/ft²	
0448483	RWS-01	Flame	Wipe	****	0.111	126.01 ug/ft²	750 ug/ft²	
0448484	RWS-02	Furnace	Wipe	****	0.111	3.15 ug/ft²	24 ug/ft²	
0448485	RWS-03	Flame	Wipe	****	0.111	126.01 ug/ft²	340 ug/ft²	
0448486	RWS-04	Furnace	Wipe	****	0.111	15.75 ug/ft²	74 ug/ft²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

AMA Analytical Services, Inc.
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AP-AIHA 63863, NVLAP 6101143, NY ELAP 6101143, Accredited Laboratory

Client: National Guard Bureau
Address: 301-1H Old Bay Lane, Attn: NGB-AVN-SI,
State Military Reservation
Havre de Grace, Maryland 21078

Job Name: Amory
Job Location: Jersey City, NJ
Job Number: Not Provided
P.O. Number: BPA #W912K6-04-A0002

Chain Of Custody: 128451
Date Analyzed: 6/10/2004

Person Submitting: [Redacted]
Report Date: 07-Jul-04

Attention: [Redacted]

Page 2 of 2

Summary of Atomic Absorption Analysis for Lead

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Final Result	Comments
0448487	RWS-05	Flame	Wipe	****	0.111	108.01 ug/ft ²	1500 ug/ft ²	
0448488	FR-01	Flame	Wipe	****	0.111	108.01 ug/ft ²	1000 ug/ft ²	
0448489	FR-02	Flame	Wipe	****	0.111	108.01 ug/ft ²	18000 ug/ft ²	
0448490	FR-03	Flame	Wipe	****	0.111	108.01 ug/ft ²	46000 ug/ft ²	
0448491	FR-04	Flame	Wipe	****	0.111	108.01 ug/ft ²	300 ug/ft ²	
0448492	FR-05	Flame	Wipe	****	0.111	108.01 ug/ft ²	3300 ug/ft ²	
0448493	PC-01	Flame	Paint Chip	****	N/A	0.01 %Pb	< 0.011 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7420; Water: SM-3111B
Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids : EPA 600/R-93/200(M)-7421; Water: SM-3113B
N/A = Not Applicable mg/Kg = parts per million (ppm) by weight ug/L = parts per billion (ppb)
%Pb = percent lead by weight ug = micrograms
Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Analyst: [Redacted] Technical Manager: [Redacted]

Non-Responsive

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

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4475 Forbes Blvd., Lanham, MD 20646 • (301) 459-2640 • Toll Free (800) 345-0967 • Fax (301) 459-2643

APPENDIX E
TRAINING CERTIFICATES

Certificate of Training

Assigned to

[Redacted] Non-Responsive

For successful completion of a 4 Hour, 1/2 Day

**Asbestos Building Inspector
Annual Refresher Training**

JULY 17, 2003

This training was approved and given in accordance with the
Regulations for Connecticut State Agencies

RCSA 20 - 44b - 1.9 and RCSA 20 - 44f and meets the
requirements of the EPA Revised MAP under TSCA Title II of 4/4/94.

Presented by

Mystic Air Quality Consultants, Inc.

1204 North Road, Groton, CT 06340 (800) 247-7746

IRF10892

Exam Grade: 97%

Exam Date: 07/17/2003

Evaluation Date: 07/17/2004

[Redacted] Non-Responsive

CSP, RS

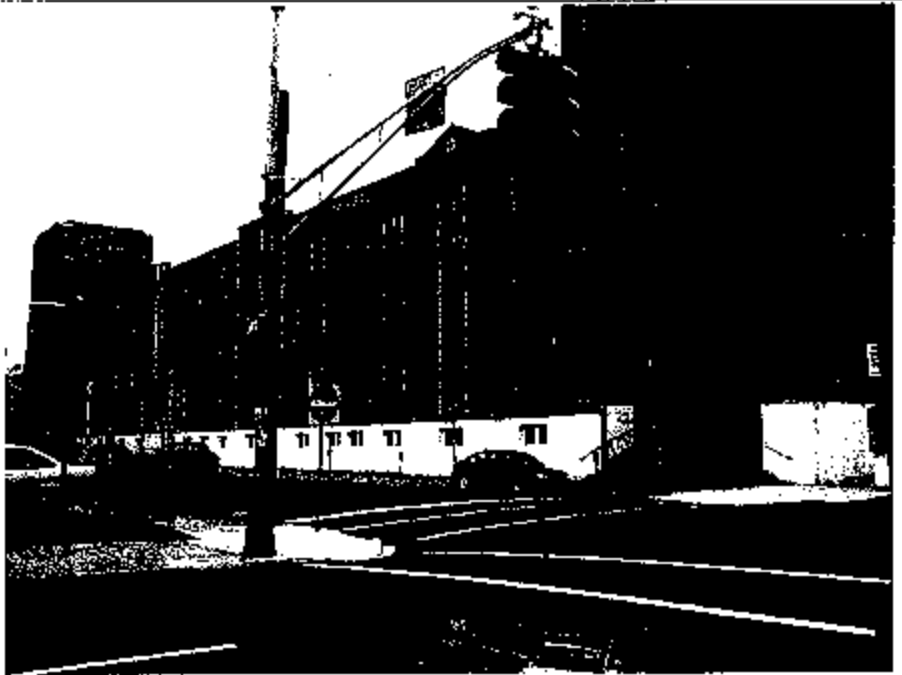
[Redacted] Non-Responsive

Training Director

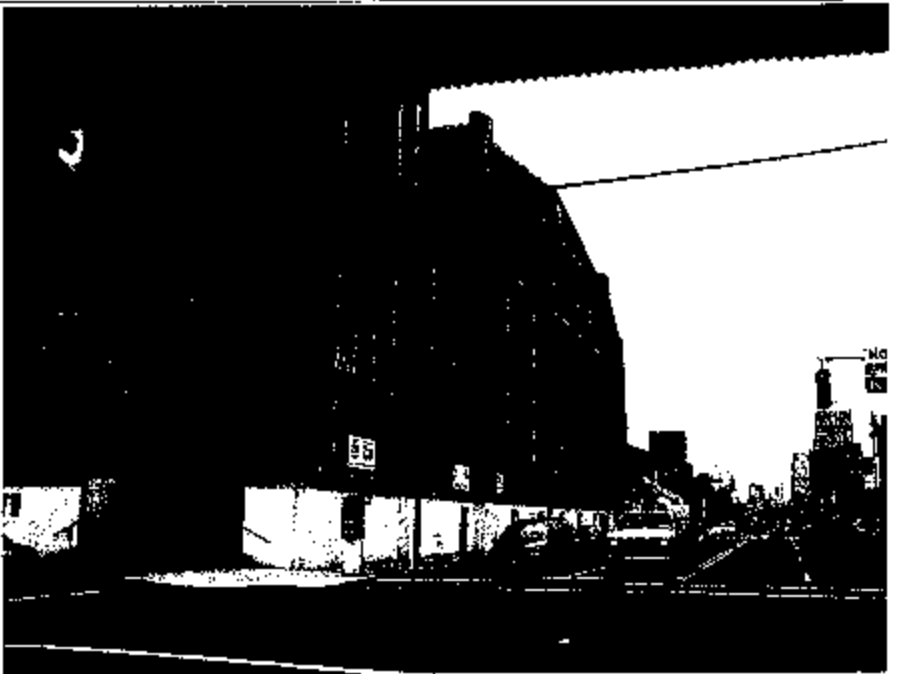
APPENDIX F
PHOTOGRAPHS



URS**PHOTOGRAPHIC RECORD****Client Name:**
Army National Guard**Site Location:**
Jersey City Armory**Project No.**
39741509**Photo No.**
1**Date:**
4/7/04**Description:**

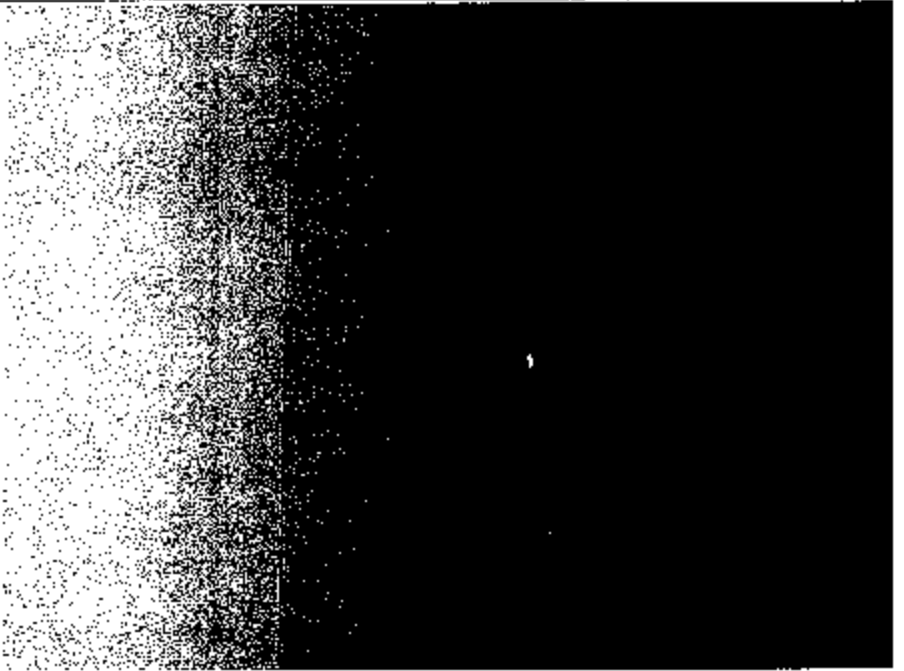

Exterior


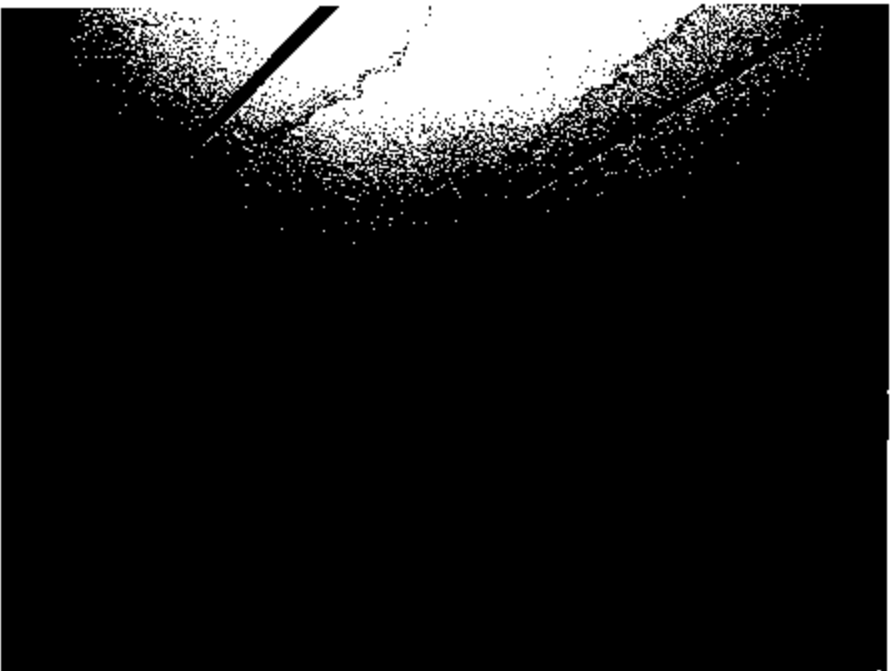
**Photo No.**
2**Date:**
4/7/04**Description:**

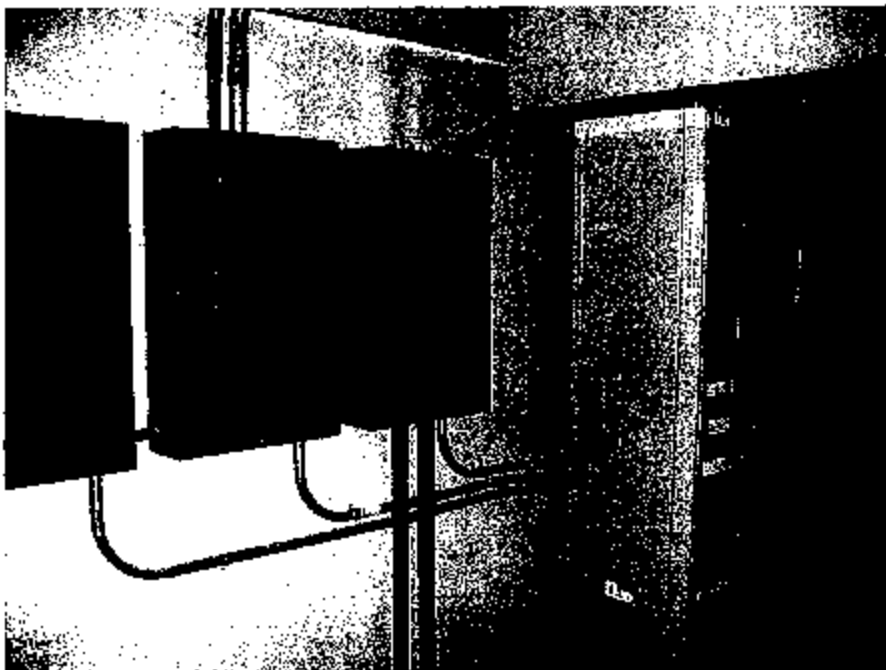
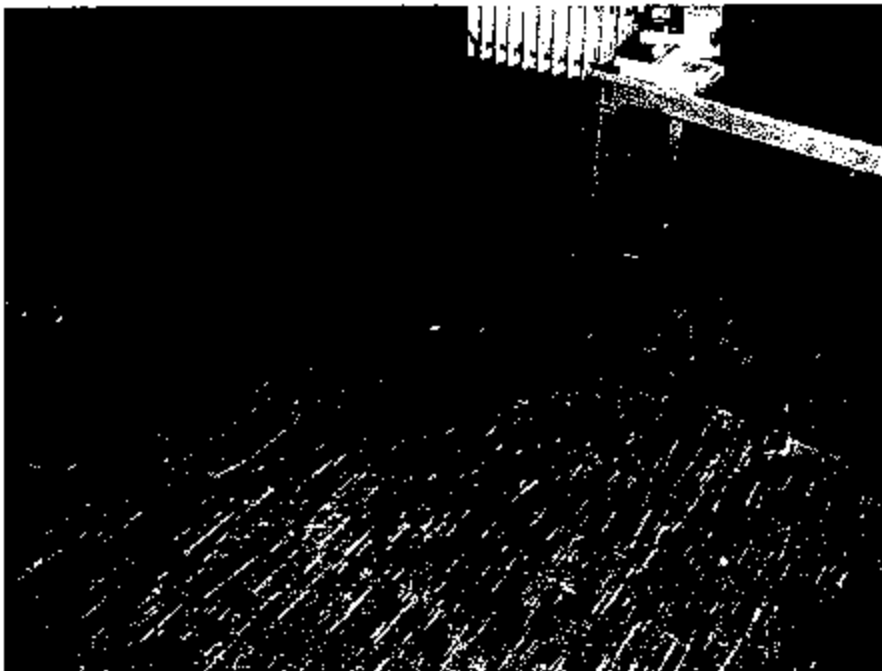
Exterior

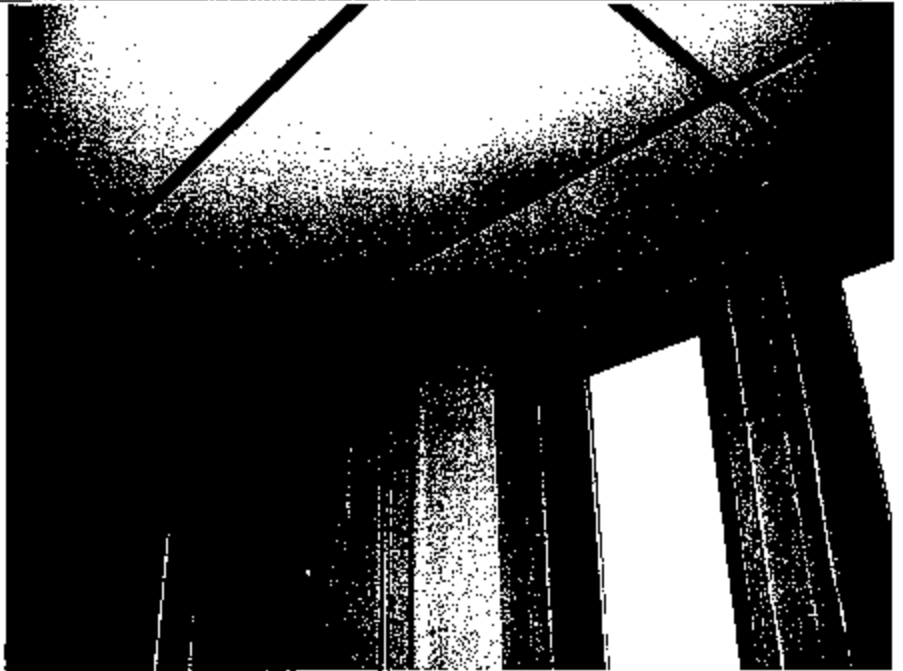


URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	
Project No. 39741509			
Photo No. 3	Date: 4/7/04		
Description: Co. E 50 th MSB Office - Desk Set-up			
Photo No. 4	Date: 4/7/04		
Description: Recruiting Office - Peeling Paint and Plaster			

URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	Project No. 39741509
Photo No. 5	Date: 4/7/04		
Description: Hallway – Fire Extinguisher			
Photo No. 6	Date: 4/7/04		
Description: Women's Room – Damaged Ceiling Plaster			

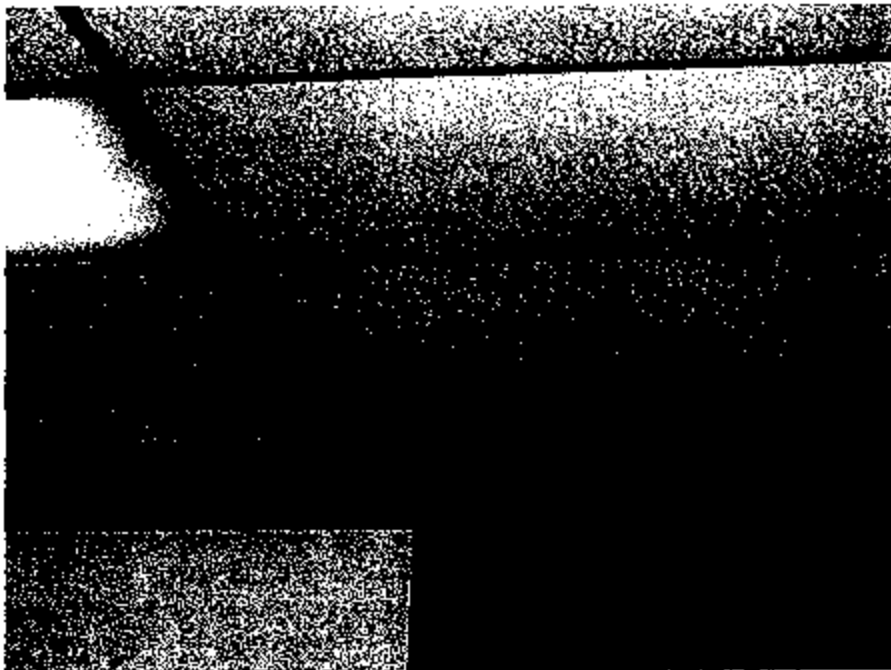

URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	
Project No. 39741509			
Photo No. 7	Date: 4/7/04		
Description: Entry – North End – Peeling Paint and Plaster on Ceiling			
Photo No. 8	Date: 4/7/04		
Description: Weight Room – Water Stained Ceiling Tiles			

URS**PHOTOGRAPHIC RECORD****Client Name:**
Army National Guard**Site Location:**
Jersey City Armory**Project No.**
39741509**Photo No.**
9**Date:**
4/7/04**Description:**3rd Floor Electrical Room**Photo No.**
10**Date:**
4/7/04**Description:**9" x 9" Brown Floor tile Throughout
Building - Intact

URS**PHOTOGRAPHIC RECORD****Client Name:**
Army National Guard**Site Location:**
Jersey City Armory**Project No.**
39741509**Photo No.**
11**Date:**
4/7/04**Description:**Room 7 D Co. Office – Water Stained
Ceiling Tile**Photo No.**
12**Date:**
4/7/04**Description:**

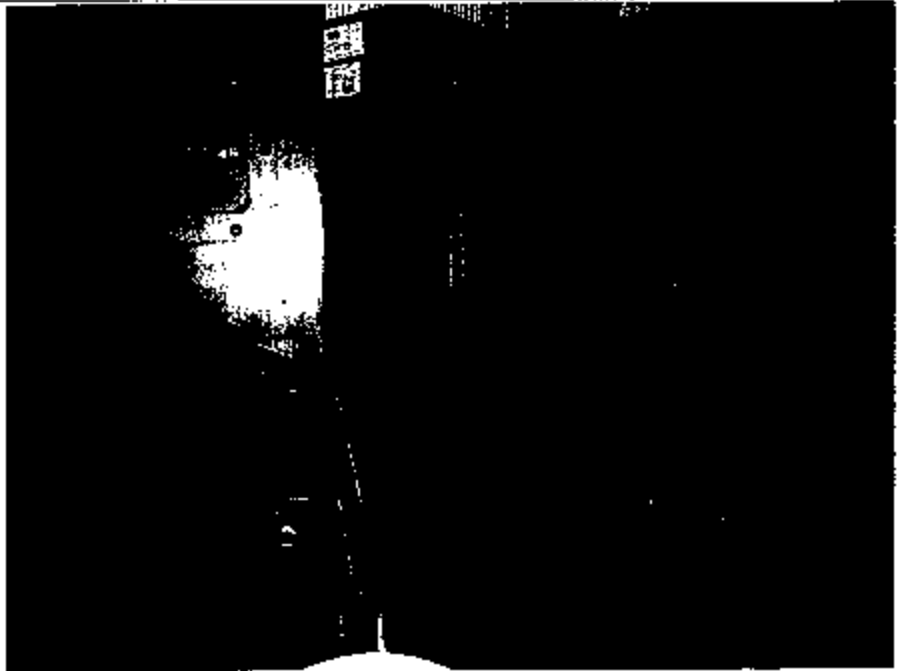
Room D Co. Office – Desk Set-up



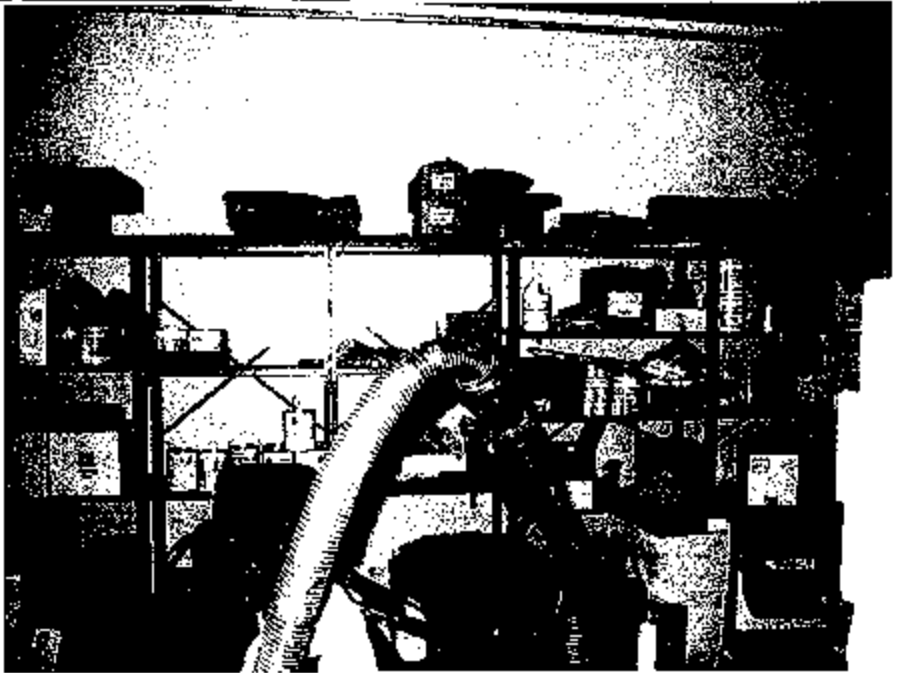
URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	
Project No. 39741509			
Photo No. 13	Date: 4/7/04		
Description: Room 7 D Co. Office – Water Stained Ceiling Tile			
Photo No. 14	Date: 4/7/04		
Description: Room 21 – Peeling Ceiling Paint			

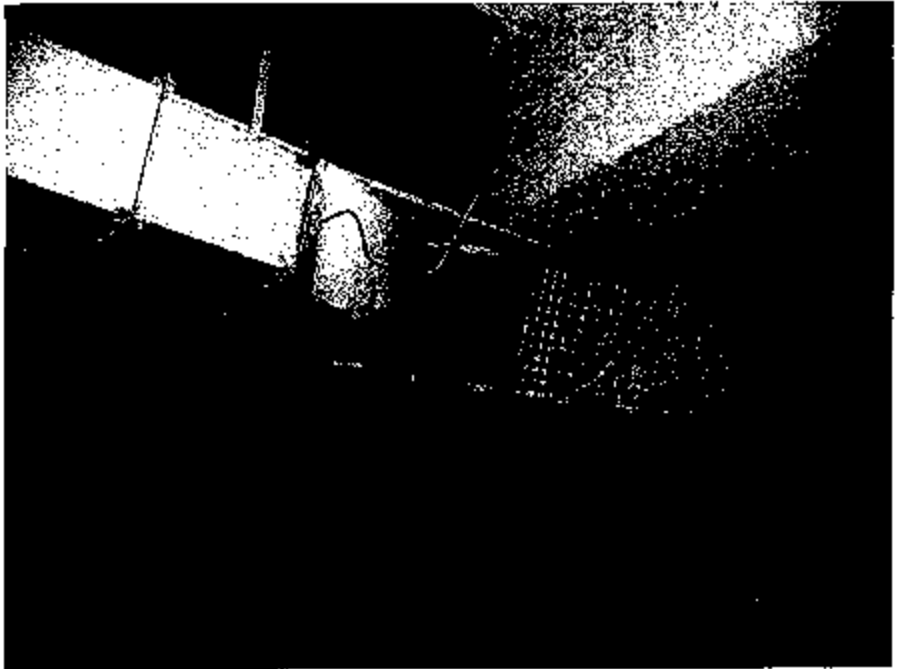
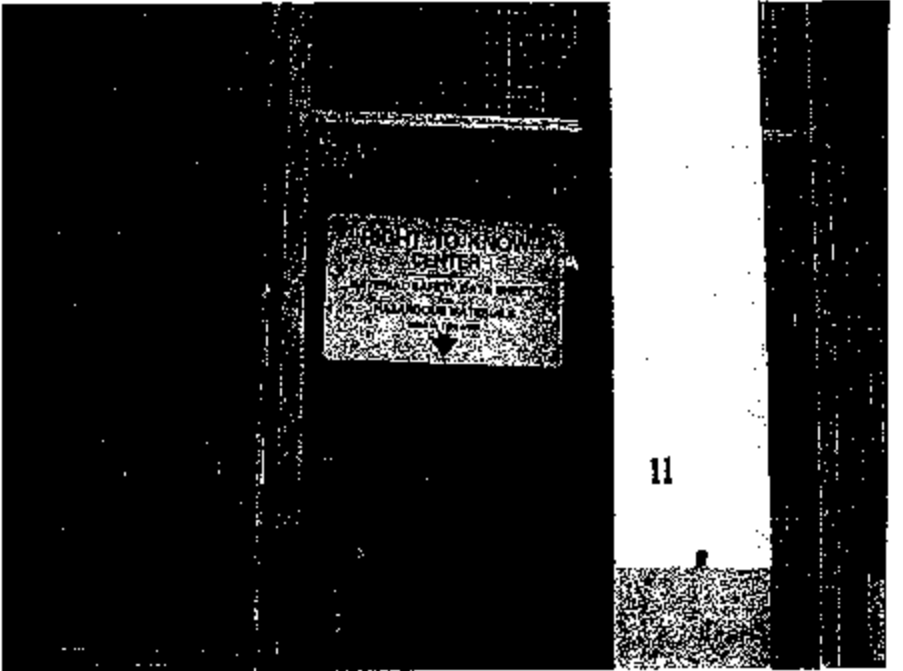
URS**PHOTOGRAPHIC RECORD****Client Name:**
Army National Guard**Site Location:**
Jersey City Armory**Project No.**
39741509**Photo No.**
15**Date:**
4/7/04**Description:**


Room 18 – Flammable Cabinet

**Photo No.**
16**Date:**
4/7/04**Description:**

Room 18 – Chemical Storage



URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	Project No. 39741509
Photo No. 17	Date: 4/7/04		
Description: Garage – Broken Duct			
Photo No. 18	Date: 4/7/04		
Description: Garage – Right to Know Center, no MSDSs			

URS		PHOTOGRAPHIC RECORD	
Client Name: Army National Guard		Site Location: Jersey City Armory	Project No. 39741509
Photo No. 19	Date: 4/7/04		
Description: Hall Outside Former Firing Range - Peeling Paint			

APPENDIX G
RECOMMENDATIONS FOR SURFACE LEAD DUST IN ARMORIES

Subject: Recommendations for Surface Lead Dust in Armories

1. In armories that do not contain childcare facilities, the National Guard Bureau (NGB) Region North Industrial Hygiene Office recommends cleaning the areas in which sample results are greater than 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$). If a special function will be held in which children will be present in this facility, consider thoroughly cleaning the areas that will be accessible to children prior to the function. This guidance is based on professional judgment, risk assessments, adaptation of Occupational Safety and Health Administration (OSHA) guidance, and feasibility of cleaning to a certain level.

a. Environmental Protection Agency (EPA) standards (40 Code of Federal Regulations (CFR) 745.227(h)(3)) are not directly applicable because they are criteria for dust-lead hazards developed for floors ($40 \mu\text{g}/\text{ft}^2$) and windowsills ($250 \mu\text{g}/\text{ft}^2$) in residential dwellings and child occupied facilities. A child occupied facility is defined as a building, or portion of a building, constructed prior to 1978, visited regularly by the same child, 6 years of age or under, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visit lasts at least 6 hours, and the combined annual visits last at least 60 hours. Most of the wipe samples in armories were collected in undisturbed areas and therefore, results are worst case scenarios and do not correlate to these standards.

b. OSHA has no specific requirement for work area surfaces. The lead standard (29 CFR 1910.1025(h)) states that all surfaces shall be maintained as free as practicable of accumulations of lead dust. In workplaces where lead dust is generated, surface levels may be much higher, but personnel exposures can be controlled by limiting airborne lead levels and following good cleanup and hygienic practices.

c. OSHA used to cite a level of $200 \mu\text{g}/\text{ft}^2$ in their Technical Manual and 29 CFR 1926.62 as guidance to its own inspectors for evaluating the cleanliness of lunchroom and locker room surfaces that are supposed to be kept as clean as possible.

d. In a report titled Derivation of Wipe Surface Screening Levels for Environmental Chemicals, the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) has determined that $200 \mu\text{g}/\text{ft}^2$ is a safe surface contamination level. They have also applied these standards as the decontamination levels for surfaces in administrative offices.

e. It should be noted that levels above these recommendations do not necessarily mean there is a significant hazard to workers who are following good cleaning and hygienic practices since there is no correlation between wipe and air samples. Rather, we recommend these levels as a precautionary measure.

2. The NGB Occupational Health Branch is developing guidance for armories that are used as childcare facilities. All states will receive this guidance when it is completed. In the interim, we recommend the following actions:

a. Clean all areas that will be accessible to children to the EPA dust-lead standard for children 6 years of age or under ($40 \mu\text{g}/\text{ft}^2$ on floors and $250 \mu\text{g}/\text{ft}^2$ on windowsills).

b. Refer to the local authorities' regulations since they can be more stringent than federal regulations.

c. Post signs in the area to inform people of the presence of lead dust and its effects.

d. If soldiers clean weapons in the facility change the policy so that they cannot clean their weapons in the facility, or if they are allowed to clean their weapons indoors, they must clean the area by wet wiping and mopping the area when they are done.

e. If the paint is peeling, contact the state Environmental Office to test for lead content and provide recommendations.

3. Air samples collected on individuals in the armory were well below OSHA's permissible exposure limit for lead (29 CFR 1910.1025(c)) of $0.05 \text{ mg}/\text{m}^3$ averaged over an 8-hour day. Therefore, based on these conditions there is currently no overexposure to personnel from lead dust in this building.

APPENDIX H

POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES (NATIONAL GUARD REGULATION 385-15, 30 DECEMBER 2002)

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

ADDENDUM

GUIDELINES FOR IFR REHABILITATION, CONVERSION, AND CLEANING

CONTENTS (Listed by paragraph number)

	Paragraph
Purpose	1
References	2
Explanation of Abbreviations and Terms	3
Policy and Procedures	4
Goal	5
Background	6
Wipe Sample Media	7
Wipe Sampling Protocol	8
Range Cleaning Instructions	9
Cleaning Stored Contaminated Equipment	10
Contaminated Sand and Lead Waste	11
Medical Surveillance	12
Worker Education	13
Personal Protection Equipment	14
Housekeeping	15
Maintenance	16
Range Rehabilitation	17
Conversion of Indoor Firing Ranges	18
Deviation	19
Appendices	
Appendix A - General Procedures for Collecting Wipe Samples	
Appendix B - Sampling Strategy for Collection of Wipe Samples	
Appendix C - Interpretation of Sample Results (Prior to Cleaning)	
Appendix D - Interpretation of Sample Results (After Cleaning)	
Appendix E - Recommended Sample Media and Containers	
Appendix F - Examples of Computation of Lead Levels from Wipe Sample Results	
Appendix G - Surface Wipe Sample Sheet	
Appendix H - Air Sampling Sheet	
Appendix I - Glossary	

Purpose

1. This addendum establishes policy and procedures for rehabilitation, conversion, and cleaning of ARNG indoor firing ranges.

2. References

Related publications are listed below.

- a. DODI 6055.1 (Department of Defense Instruction, Occupational Safety and Health (OSH) Program).
- b. AR 11-34 (The Army Respiratory Protection Program).
- c. AR 40-5 (Preventive Medicine).
- d. NGR 385-15 Policy, Responsibilities, and Procedures for Inspection, Evaluation, and Operation of ARNG Indoor Firing Ranges).
- e. 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health Standards
- f. OSHA Technical Manual, Edition VII.
- g. DHEW NIOSH 76-130 (Lead Exposure and Design Considerations for Indoor Firing Ranges).

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

3. Explanation of Abbreviations and Terms

Abbreviations and special terms used in this publication are listed in the glossary.

4. Policy and Procedures

Conversion of Ranges. Indoor firing ranges can be safely rehabilitated or converted for other uses, such as a storage area, kitchen, or office space, provided the following –

- a. Previously active ranges must be thoroughly decontaminated and cleaned to acceptable levels.
- b. The level of cleanliness is to be determined by sampling. The Occupational Safety and Health Administration's (OSHA) Technical Manual, 5th Edition, provides guidance on the methods and techniques needed to collect wipe samples (Appendix A).

(1) Wipe samples must be collected and analyzed prior to and after cleaning.

(2) Post-cleaning surface wipe sample results must be less than or equal to 200 micrograms per square feet (ug/sq ft). The sampling strategy, which is the amount and location of wipe samples to be collected, is provided in Appendix B. Methods for interpreting the sample results are contained in Appendix C and D.

- c. Equipment/items previously stored in the range must be decontaminated and cleaned to acceptable levels.

(1) Samples must be collected from equipment/items stored in the range. Sample selection is critical, because the number of items stored and length of storage differs from range to range. The amount and location of the samples, should be representative of the areas where lead dust is most likely to accumulate. The more samples collected, the better the statistical comparison of the results.

(2) Samples must be collected from the smooth surfaces of the equipment/items, in so much as possible. Results of samples collected from a rough surface will be inaccurate due to the minimal surface contact of the media. Further, the likelihood of tearing the media filter is greater on rough surfaces.

(3) Samples should also be collected on items stored the longest period of time, and which have not been disturbed. Items stored closest to the bullet trap and firing line are likely to have higher concentrations of lead dust. Methods for interpreting the sample results are contained in Appendix C and D.

5. Goal

To ensure every indoor firing range is free of lead dust, and to reduce the number of unsafe ARNG indoor firing ranges.

6. Background

The Environmental Protection Agency (EPA) identifies lead as a highly toxic metal. Elemental lead is indestructible, and common in the environment. Lead can enter the body by inhalation (breathing) or ingestion (eating). In addition, lead is a cumulative poison. It accumulates in the blood, bones, and organs, including the kidneys, brain and liver. Effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Symptoms include loss of appetite, difficulty sleeping, irritability, fatigue, headache, and inability to concentrate. It can stay in the bones for decades. Worker awareness and training are important to ensure that employees can recognize the symptoms of exposure and get prompt medical attention.

7. Wipe Sample Media

a. OSHA Technical Manual provides the necessary guidance on the technique needed to collect wipe samples (Appendix A). Only distilled or deionized water will be used to saturate dry sample media. At least one field blank filter must be submitted with each sample sheet. The field blank must be from the same lot, and labeled as a blank on the sample sheet. Appendix E identifies how and where to obtain sample media. Use the following guidance for determining media acceptability.

(1) Acceptable Media consists of –

(a) Ghost Wipes™ (PREFERRED METHOD)– Pre moistened

(b) Thirty-seven (37) millimeters (mm) mixed cellulose ester (MCE) filters, with or without the cassettes.

~~DO NOT REPRODUCE OR TRANSMIT THIS INFORMATION TO ANY OTHER~~

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

(2) Unacceptable Media consists of but is not limited to --

- (a) Cotton balls
- (b) Baby wipes or wet wipes

b. Documentation of Sample Collection. A Surface Wipe Sample Sheet must be completed and submitted with samples to your supporting laboratory. A copy of this form is located in Appendix G. Refer to Appendix A on how to collect wipe samples.

8. Wipe Sampling Protocol

See Appendix A.

9. Ranges Cleaning Instructions

a. Written procedures, such as a scope of work, or Standing Operating Procedure (SOP) that complies with all federal, state and local regulations must be established prior to decontamination operations. The range ventilation system will be in operation during range cleaning to ensure that a negative pressure environment is maintained. In the absence of mechanical ventilation system, all doors and windows will be sealed to eliminate fugitive emissions. A High Efficiency Particulate Air (HEPA) filtered vacuum system is the preferred method of cleanup followed by wet wiping of the range. The HEPA vacuum is designed to collect loose surface lead dust particles.

b. Any general purpose cleaning solution can be used. However, Spic and Span™ has been found to be an effective cleaning solution by other Army organizations. Mix new solutions of cleaning solution frequently. Wet wiping will require dual containers of water; one container for wetting the applicator (mops, rags, sponge, etc.) and the other container for rinsing the applicator after the dust has been wiped from the surfaces. When placed in containers, wastewater should be left to evaporate.

c. PROPERLY DISPOSE OF ALL HAZARDOUS WASTE. DO NOT PLACE LEAD CONTAMINATED WASTE INTO THE SEWER SYSTEM OR ONTO THE GROUND.

d. Mop-heads, sponges and rags will be discarded as hazardous waste following cleanup.

e. Wet cleaning by a high-pressure system is prohibited, as this method may embed the lead into the substratum and generate large quantities of unwanted hazardous waste.

f. Dry sweeping is not permitted.

g. All surface areas of the range must be cleaned. Do not remove the coating on smooth painted surfaces that are properly sealed.

h. Wood floors should receive a coat of deck enamel or urethane; concrete floors should be sealed with deck enamel and linoleum or tile floors should be waxed.

i. A progression of cleaning from top to bottom and from behind the steel backstop to the firing line should be used. After removing the sand, if applicable, and the steel backstop, areas in front of and behind the bullet trap along with the steel backstop plate(s) should be cleaned. Next, clean the ceiling, lights, baffles, retrieval system, heating system(s), and ventilation duct(s). Acoustical material should be vacuumed and removed rather than painted over.

j. A Toxic Characteristic Leaching Procedures (TCLP) test for lead only may need to be performed on the acoustical material. A TCLP test will determine if the material is classified as "hazardous" and can be disposed of in a sanitary landfill. Contact your State Environmental Office for assistance before arranging for this laboratory testing. The floor should be the last surface cleaned, starting at the bullet trap and ending behind the firing line.

k. After wet wiping all surfaces, permit the area to dry. Vacuum all surface areas until no dust or residue can be seen using the HEPA.

l. A thorough visual inspection to detect dust should be made following cleanup and prior to collecting post surface wipe samples.

m. As a variety of conditions exist in ranges, unique situation may arise and specific written guidance from your Regional Industrial Hygiene Office may be required.

10. Cleaning Stored Contaminated Equipment

a. Equipment contaminated (sample result is higher than 200 micrograms/sq ft) with lead dust must be decontaminated before it is removed from the range.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

b. Equipment located near the bullet trap and firing line should be cleaned first and then removed. The cleaning method depends on the size of the equipment and the material it is comprised of, i.e. metal, wood, concrete, porous, non-porous, smooth or rough finish etc. However, either HEPA vacuum or the wet wipe method will be used. Refer to paragraph 9 for additional guidance.

c. Every attempt should be made to clean and reclaim items since disposing of equipment, as hazardous waste is costly and wasteful. Only as a last resort will the item be discarded as hazardous waste. Porous items, such as office partitions and carpet that were present during firing should be considered grossly contaminated and be discarded unless analysis proves otherwise. Consult your State Environmental Office for the proper hazardous waste disposal methods.

11. Contaminated Sand and Lead Waste

Consult your State Environmental Office for specific disposal guidance to ensure compliance with local laws and regulations.

12. Medical Surveillance

a. A pre-placement medical examination is required for all individuals involved with range cleanup operations. Consult 29 CFR 1910.1025 for additional information on medical surveillance requirements.

A medical examination must include—

- (1) A detailed work and medical history
- (2) A thorough physical examination
- (3) A respirator use evaluation
- (4) A blood pressure measurement
- (5) Blood sample analysis to include:
 - (a) A baseline blood lead level
 - (b) A complete blood count (CBC)
 - (c) Blood urea nitrogen (BUN)
- (6) Serum creatinine
- (7) Zinc protoporphyrin
- (8) A routine urine analysis
- (9) Recordkeeping

b. Air Monitoring. Worker breathing zone (BZ) air samples must be collected to ensure personnel are not overexposed to airborne lead during the cleanup phase. Representative air samples will be collected on all personnel involved in the cleanup operation. These exposure levels will be used to evaluate work practices and personal protective equipment. Within five (5) working days after receipt of monitoring results, each employee will be notified in writing of the air sampling results. Contact your Regional Industrial Hygiene Office for additional information pertaining to air sampling.

13. Worker Education

OSHA 29 CFR 1910.1025 requires that workers who are potentially exposed to any lead level shall be informed of the content of Appendix A and B of this standard. A training program must be instituted for all individuals who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritations exists. The training program shall be repeated for personnel currently involved in range cleanup operations, at least annually. This training must be documented on DD Form 1556 or DD Form 1556-1 and filed permanently in the employee's Official Personnel File (OPF) or the soldier's Official Military Personnel File (OMPF). As a minimum, complete blocks 1, 2, 3, 7, 8, 11, 12, 13, 17, 18, 24, 33 and 36 of DD Form 1556. Place the following statement in block 18, "Do not destroy, retain this record for the duration of employment/service plus 30 years." The employer will assure that each employee is informed of the following:

- a. The content of the standard and its appendices.
- b. The specific nature of operations that could result in exposure to lead above the action level.
- c. The purpose, proper selection, fitting, use and limitations of respirators.
- d. The purpose and a description of medical surveillance program.
- e. Eating and drinking are prohibited in lead contaminated areas.
- f. Smoking and smoking materials will not be permitted in contaminated areas.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- g. Employees must wash their hands and other exposed skin whenever they leave the work area.
- h. The engineering controls and work practices associated with the individual's job assignment.
- i. The contents of any compliance plan in effect.

14. Personal Protective Equipment

For housekeeping and rehabilitation the employer shall select respirators from among those approved for protection against lead dust, fume, and mist by the National Institute for Occupational Safety and Health (NIOSH). The employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134. As a minimum, personnel conducting the decontamination of the range will be provided with the following personal protective equipment.

a. Employees engaged in range rehabilitation and/or range conversion, the employer shall provide at no cost to the employee, and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

- (1) Protective coveralls with hood and shoe covers or disposable Tyvek™ full body suit.
- (2) Disposable rubber gloves; and disposable shoe coverlets (if necessary).
- (3) Full-face air purifying respirator with P-100 cartridges.

b. The employer shall provide the clothing required in a clean and dry condition at least daily to employees engaged in the conversion of indoor firing ranges.

c. The employer shall provide for the cleaning, laundering, or disposal of used or contaminated protective clothing and equipment.

d. The employer shall assure that all protective clothing is removed at the completion of a work shift only in areas designated for that purpose (Change Areas or Change Rooms).

e. The employer will ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area that seals sufficiently enough to prevent dispersion of lead dust.

f. The employer will further inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

15. Housekeeping

This chapter applies to all active indoor ranges classified as "safe" for use. To keep the range operating properly and to keep possible hazards to a minimum, a routine housekeeping/ maintenance program is essential.

a. The employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. To this end the range will be clean at the conclusion of each firing day.

b. The range ventilation system will be in operation during all cleaning operations, to ensure a negative pressure environment is maintained.

c. Ranges will be cleaned by using the wet method or vacuuming. A HEPA (High Efficiency Particulate Air) filtered vacuum system is the preferred method of meeting this requirement. The use of compressed air to clean floors is absolutely prohibited. If the wet method is utilized the floor should be equipped with a floor drain, and collection system. When there is no collection system, the water can be allowed to slowly evaporate leaving lead deposits/sludge. The deposits/sludge can then be collected, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums must be labeled to identify contents, in accordance with the hazardous waste program.

d. A NIOSH approved respirator (P-100) for protection against lead dust, fume, and mist will be worn at all times while cleaning.

e. When cleaning start behind the firing line forward, cleaning the floor and horizontal surfaces.

16. Maintenance

The following are the minimum maintenance requirements, which must be performed quarterly by the range custodian, or by a person designated by the facility commander.

a. Inspect the ventilation system fan for condition of belts to ensure that they are not frayed or slipping.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

- b. Evaluate static pressure and compare to the baseline static pressure reading. Any changes will be reported through the safety manager to the Regional Industrial Hygienist.
- c. Inspect Louvers, if applicable, to ensure they are opening fully.
- d. Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps.
- e. **Bullet Trap.** The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.
- f. The range ventilation system will be operational during all bullet trap cleaning procedures.
- g. All personnel involved in cleaning of the bullet trap will wear a NIOSH approved respirator, and proper personal protective equipment.
- h. All debris from the bullet trap will be collected, package and turned in, in accordance with guidance from the environmental office.

17. Range Rehabilitation.

This chapter applies to all indoor firing ranges that have been identified as candidates for rehabilitation. This chapter further provides guidance for cleaning and/or sampling that might be required prior to the start of rehabilitation.

- a. The portion(s) of the range to under go rehabilitation must be sampled to determine the level of lead contamination. Wipe samples will be taken per the established sampling protocol. See Appendix A.
- b. All personnel involved in range rehabilitation will wear a NIOSH approved respirator (P-100), and proper personal protective equipment as prescribed in paragraph 14 above.
- c. Prior to start of rehabilitation the environmental office must be notified to determine the disposition of lead containing debris.

18. Conversion of Indoor Ranges

Prior to the start of decontamination, employers must ensure that all procedures to be used comply with Federal, State, and local regulations. To ensure that all lead contamination is removed the following procedure is established.

- a. All ranges slated for conversion will be inspected and evaluated.
- b. All equipment stored in the range, if applicable, prior to the start of decontamination must be sampled, decontaminated, re-sampled and removed or turned in as lead contaminated material. See paragraph 10 above.
- c. All acoustical tiles and/or sound proofing material (if applicable) must be removed and turned in as lead contaminated material through the environmental office.
- d. The backstop, bullet trap, target retrieval system and firing line stations must be removed and turned in as lead containing material through the environmental office.
- e. Light fixtures and ventilation system grills must be removed and decontaminated.
- f. Ventilation system ducts need to be decontaminated or removed and replaced.
- g. The exhaust fans and/or the complete ventilation air-handling unit (if applicable) must be decontaminated or removed.
- h. Cover all openings of any component previously decontaminated prior to start of interior decontamination of the firing range.

19. Deviation

Deviations from this guidance will require a written exception to policy from your Regional Industrial Hygiene Office. Questions and/or comments regarding this subject should be directed to your Regional Industrial Hygiene Office or Chief, National Guard Bureau, Attn: NGB-AVS-S, 111 South George Mason Drive, Arlington, VA 22204-1382.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX A GENERAL PROCEDURES FOR COLLECTING WIPE SAMPLES

A-1 If multiple samples are to be collected at the work site, prepare a rough sketch of the area(s) or room(s), which are to be wipe sampled.

A-2 A new set of clean, impervious gloves should be used for each sample to avoid contamination of the media by previous samples and to prevent contact with the substance.

A-3 (1) If using Ghost Wipes™, tear open the individually sealed package. Remove the moistened wipe. Unfold the wipe.

(2) If using a dry media such as MCE or Whatman™ filter, moisten the filter with distilled or deionized water prior to sampling.

A-4 Place a 10 cm by 10 cm template on the area to be wiped.

A-5 Apply uniform firm pressure while wiping the area inside the template.

A-6 To insure that all portions of the partitioned area are wiped, start at the outside edge and progress toward the center making progress toward the center making concentric squares decreasing in size.

A-7 After collecting a sample, fold the filter or wipe inward and place into a container and number it. Note the number at the sample location on the sketch.

A-8 At least one blank filter treated in the same fashion but without wiping, should be submitted to the laboratory.

APPENDIX B SAMPLING STRATEGY FOR COLLECTION OF WIPE SAMPLES

B-1 Prior to cleaning the ranges, the three samples must be collected and analyzed for total lead dust on each surface, i.e., floor, ceiling, backstop, and wall to include the plenum wall, if applicable. In addition, a total of 3 samples should be collected from areas which have been least disturbed by airflow. Established walkways should be avoided.

B-2 Samples should be staggered to different areas of the range. A grid system should be utilized. Each range surface areas should be divided evenly into 3 by 3 sections. Samples should not be collected on all one section of a wall or end of the building.

APPENDIX C INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

C-1 200 micrograms/sq ft or LESS

If all sample results are 200-micrograms/sq ft or less, the range can be converted and/or used for any purpose.

C-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continued with cleaning instructions listed in paragraph 9 Sample results will be used to establish a baseline.

C-3 Over 200,000 micrograms/sq ft

Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft, and should be considered suspect.

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX C (Continued)

C-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surface causing the lead dust to be "ground" into the substratum. For examples, a maintenance activity may have oversprayed paint or spilled solvents onto the surface. Regional Industrial Hygiene Office for specific guidance.

APPENDIX D**INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)**

D-1 200 micrograms/sq. ft or less

If all sample results are less than 200 micrograms/sq ft, the range can be converted and/or used for any purpose after a coat of lead-free latex paint is applied.

APPENDIX E**RECOMMENDED SAMPLE MEDIA AND CONTAINERS**

E-1 The following is a list of vendors, which supply the media and containers necessary to collect air and lead surface wipe samples. The information is provided to assist in obtaining the proper media and containers. Alternative vendors are available and may be utilized, if known. Contact your Regional Industrial Hygiene Office for additional assistance or clarification.

E-2 Pre-loaded 3 piece cassette with mixed cellulose ester (MCE) filter and pad, 37 millimeter (mm), pore size 0.8 microns, breathing zone (BZ) and general area (GA) air samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Millipore Corp. Ashby Road Bedford, MA 01730 617-275-9200 800-225-1380	MAWP-037-A0
b. Gelman Sciences 600 South Wagner Rd Ann Arbor, MI 48106 313-665-0651 800-521-1520	64678 (GN-4)
c. Supelco, Inc. Supelco Park Bellefonte, PA 16823 800-247-6528 800-359-3041	2-3368M

E-3 37 mm MCE Filter with pad, no cassette included, for lead surface wipe samples.

<u>Order From</u>	<u>Catalog Number</u>
a. Supelco Inc. Supelco Park Bellefonte, PA 16823	2-3381M

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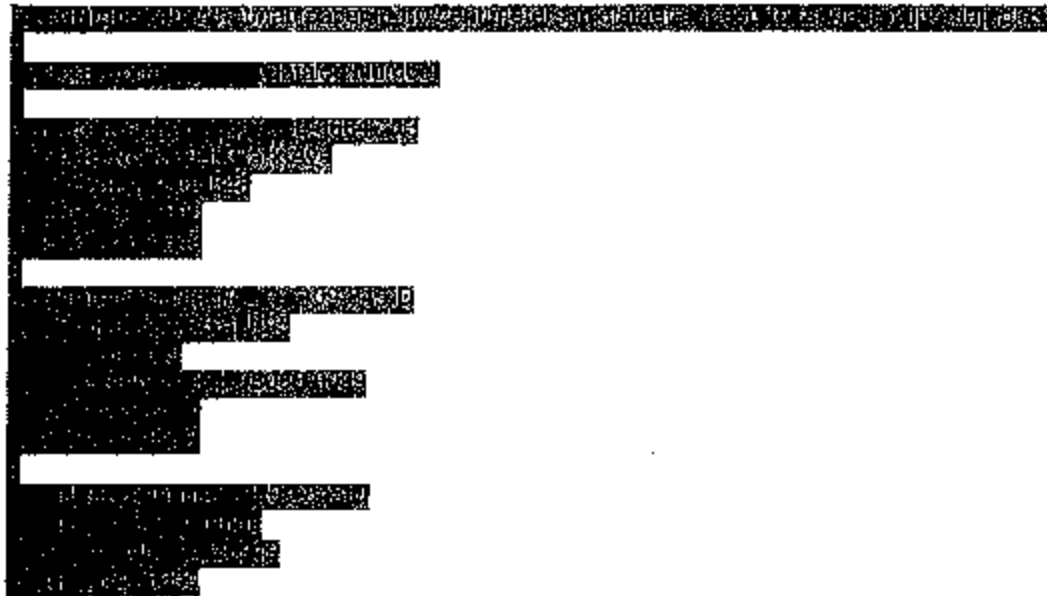
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APPENDIX E (Continued)

800-247-6628
800-359-3041

b. Millipore Corp. AAWP-037-00
Ashdy Road
Bedford, MA 01730
617-275-9200
800-225-1380

c. SKC, Inc. 225-5
334 Valley View Rd.
Eighty Four, PA 15330
412-941-9701
800-752-8472



E-5. Glass container (25 milliliter) for collection and shipment of media.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

- | | |
|-----------------------------|-------------------|
| a. Pierce Chemical Co. | 13219 (screw cap) |
| P.O. Box 117 | |
| Rockford, IL 61105 | |
| 815-968-0747 | |
| 800-874-3723 | |
| | |
| b. Alltech Associates, Inc. | 95321 (screw cap) |
| Applied Science Labs | |
| 2051 Waukegan Rd | |
| Deerfield, IL 60015 | |
| 312-948-8600 | |

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX E (Continued)

800-255-8324

E-6. Ghost Wipes™.

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

Environmental Express	SC4200
490 Wando Park Blvd.	
Mt. Pleasant, SC 29464	
1-800-343-5319	

E-7. Ghost Wipe™ Containers

<u>Order From</u>	<u>Catalog Number</u>
-------------------	-----------------------

Environmental Express	SC499
490 Wando Park Blvd.	
Mt. Pleasant, SC 29464	
1-800-343-5319	

E-8. Plastic ziplock bags can be obtained through the Army logistics system. Many sizes are available. Contact your supporting logistics branch for assistance.

E-9. Distilled water can be purchased at larger grocery stores, usually by the gallon, at a cost of approximately \$1.25. Deionized water can be obtained at local and state water labs or a hospital.

APPENDIX F

EXAMPLES OF COMPUTATION OF LEAD LEVELS FROM WIPE SAMPLE RESULTS

Sample results will be returned in the form of micrograms. The results must be converted to micrograms per square foot. This can be accomplished by following the examples listed below:

$$\frac{75 \text{ ug}}{100 \text{ cm}^2} \times \frac{929 \text{ cm}^2}{1 \text{ sq ft}}$$

$$\frac{75 \times 929}{100} = \frac{69675}{100} = 696.75 \text{ ug/sq ft}$$

ug – Microgram

Cm2 – Centimeters squared

Sq ft – Square foot

NGE-AVS-5G

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APPENDIX G
SURFACE WIPE SAMPLING SHEET

Industrial Hygiene Surface Wipe Sample Sheet					
Return Address			Point of Contact (name & phone #)		
			Samples Collected By		
Sampled Facility	City	State	Location (bldg/area)		
Description of Operation			Date Collected	Date Shipped	
Analysis Desired					
Sampling Data					
Lab Use Only	Sample #	Results	Remarks		
Comments to Lab:					

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APPENDIX H
AIR SAMPLING SHEET

Industrial Hygiene Air Sample Sheet							
Return Address				Point of Contact (name/phone #)			
				Samples Collected By			
Sampled Facility		City		State		Location (bldg/area)	
Description of Operation		___ Persons Exposed		___ Hrs/Day		Method of Collection	
Analysis Desired							
Sampling Data							
Sample No.							
Pump No.							B
Time On							L
Time Off							A
Total Time (min)							N
Flow Rate (LPM)							K
Volume (liters)							
GA/BZ							
Employee Name/ID							
Laboratory No.							
Calibration Information							
Pump No.	Calibration (LPM)		Rotameter Setting	Date			
	Pra-Use	Post-Use					
Name of Calibrator		Calibration Date		Pump Manufacturer			
Comments to Lab:							

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SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program -- POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

**APPENDIX I
ABBREVIATIONS AND TERMS**

**Section I
Abbreviations**

ARNG

Army National Guard

BUN

Blood urea nitrogen

BZ

Breathing zone

CBC

Complete blood count

CFR

Code of Federal Regulations

cm

Centimeter

DHEW

Department of Health, Education and Welfare

EPA

Environmental Protection Agency

GA

General area

OMPF

Official Military Personnel File

OPF

Official Personnel File

OSHA

Occupational Safety and Health Administration

TCLP

Toxic Characteristic Leaching Procedures

ug/sq ft

Micrograms per square foot

NGB-AVS-SG

SUBJECT: All States (Log Number P01-0075) Army National Guard (ARNG) Safety and Occupational Health Program – POLICY AND RESPONSIBILITIES FOR INSPECTION, EVALUATION AND OPERATION OF ARMY NATIONAL GUARD INDOOR FIRING RANGES

APPENDIX I (Continued)

Section II Terms

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Lead-Contaminated Range

It is assumed that all indoor ranges, which have been fired in, are lead-contaminated.

Wipe Sample

The terms wipe, swipe, or smear samples are use synonymously to describe the techniques utilized for assessing lead surface contamination.



1215 Manor Drive, Suite 205
Mechanicsburg, PA 17055
Phone: 717.590.7031
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www.complianceplace.com

Industrial Hygiene Survey Report

National Guard Facility
Jersey City Readiness Center

Prepared For: National Guard Bureau Region North IH
301-IH Old Bay Lane
Havre de Grace, MD 21078

Survey Location: Jersey City Readiness Center
678 Montgomery Street
Jersey City, NJ, 07306

Prepared By: Compliance Management International, Inc.
1215 Manor Drive
Suite 205
Mechanicsburg, PA 17055

Survey Date: March 11, 2013

Report Date: April 2, 2013

Non-Responsive

Senior Industrial Hygienist

Table of Contents

Section 1.0 Executive Summary	3
Section 2.0 Operation Description & Observations.....	4
Section 3.0 Lead Testing.....	5
Section 4.0 Lighting.....	7
Section 5.0 Indoor Air Quality.....	9
Section 6.0 Suspect Asbestos Containing Building Materials.....	11
Section 7.0 Equipment	12
Section 8.0 Limitations	13
Appendix A. Laboratory Analysis Report	14
Appendix B. Photographs	15
Appendix C. Floor Plan	16
Appendix D. References	17

Section 1.0 Executive Summary

An industrial hygiene survey was conducted on March 11, 2013, at the Jersey City Readiness Center located at 678 Montgomery Street, Jersey City, NJ 07306. The survey was performed by Mr. Non-Responsive.

1. Lead bulk, surface and air samples were collected. Surface levels of lead exceeded 200 micrograms per square foot ($\mu\text{g}/\text{ft}^2$) in eleven (11) locations. See Section 3.0 for sampling results.
2. Lighting levels did not meet the American National Standard Institute/Illuminating Engineering Society of North America (ANSI/IESNA) recommended guideline in six locations. See Section 4.0 for detailed findings.
3. Indoor air quality (IAQ) parameters of temperature, relative humidity, carbon monoxide and carbon dioxide (ventilation) were evaluated during the assessment.
 - a. Relative humidity levels were below the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) TG 277 recommended guideline of 30-60% in three locations.
 - b. Temperature levels were above the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE 55-2010) recommended guideline of 68-79 degrees F in one location.
 - c. CO levels were less than the National Ambient Air Quality Standard (NAAQS) recommended ceiling of 9 ppm.
 - d. CO₂ levels met the ASHRAE 62.1-2010 recommended guidelines for mechanically ventilated office buildings and commercial settings.

See Section 5.0 for detailed sampling results.

4. Water-stained ceiling tiles were observed in the facility. No active water leaks were observed at the time of this survey.
5. Suspect asbestos containing materials were found to be deteriorated and in poor condition. See Section 6.0 for detailed findings.

Section 2.0 Operation Description & Observations

The Jersey City Readiness Center is mainly an administrative facility with a drill hall/arena, offices and classrooms, basement parking area, and converted firing range/storage area. There were approximately 20 full-time employees stationed at this facility at the time of this survey.

The building was initially purchased in the 1880s. It is a three-story structure with a basement. The exterior is brick. The interior walls are concrete block with drywall in some of the offices. The floors are concrete, 9" x 9" and 12" x 12" floor tile, and carpet. The third floor is currently vacant. It is scheduled to be renovated and used as office space.

The Heating, Ventilation, and Air-Conditioning (HVAC) system consists of a natural-gas fired forced hot water furnace for heat. A roof mounted air conditioning (A/C) unit services the third floor apartment.

The area of the building that was once a firing range has been converted into a storage area. No firing range components remain.

There is no child-care facility in the building.

Overall housekeeping practices were fair. This should be improved.

No ergonomic concerns were reported. Office areas have computer work stations. Work stations appeared properly designed. Personnel had supportive chairs.

Section 3.0 Lead Testing

Various surfaces within the facility were screened for lead using surface/wipe samples. Surface/wipe samples were collected in accordance with the American Society for Testing and Materials (ASTM) E 1792 protocols. Air samples were collected using 0.8 um mixed cellulose ester (MCE) filter cassettes attached to low volume air sampling pumps. Blank samples were submitted to the laboratory for quality control purposes. Samples were sent to AMA Analytical Services, Inc., in Lanham, Maryland, for lead analysis using Environmental Protection Agency (EPA) Method 600/R-93/200 (M)-7420. A copy of the laboratory analysis report can be found in Appendix A.

Lead Testing Results Summary

Sample #	Location	Bulk (%)	Air ug/m ³	Surface ug/ft ²
1	Armorer's Office	*	<4.5	*
2	Drill Hall/Arena	*	<4.4	*
3	Blank	*	<3	*
4	Converted Firing Range- Floor	*	*	2100
5	Converted Firing Range- Cabinet	*	*	1200
6	Converted Firing Range-Light Fixture	*	*	500
7	Converted Firing Range-Outside Entrance	*	*	2800
8	A6 Microwave	*	*	<110
9	Drill Hall/Arena, Floor Center	*	*	<110
10	Drill Hall/Arena- Emergency Light South	*	*	220
11	Drill Hall/Arena- Phone Box	*	*	460
12	Drill Hall/Arena- Outside Entrance Floor	*	*	550
13	Lobby- Coke Machine	*	*	210
14	1 st Floor Corridor Floor	*	*	<110
15	Recruiting Office- Shelf	*	*	<110
16	Family Assistance Center- Window Sill	*	*	200
17	COC Commander Office- cabinet	*	*	<110
18	C2 Bookshelf	*	*	<110
19	C9 Window Sill	*	*	<110
20	2 nd Floor Hall- Floor at Copier	*	*	<110
21	C18- Countertop	*	*	<110
22	3rd Floor- Window- Sill	*	*	6200
23	Kitchen- Refrigerator	*	*	<110
24	Dining Room- Wall Heater	*	*	230
25	C15 Wall	0.14	*	*
26	FAC Wall	0.1	*	*
-	Criteria	0.5	50	200

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **ug/ft²** = micrograms per square foot
4. **ug/m³** = micrograms per cubic meter
5. **ug** = micrograms

Sources:

1. NG PAM 420-15 Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges
2. OSHA 29CFR1910.1025 Lead Standard

The National Guard Bureau currently utilizes 200 micrograms per square foot (ug/ft^2) as a benchmark for identifying lead-contaminated surfaces. This guideline is referenced in NG PAM 420-15 "Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges" as a satisfactory surface contamination level unless the facility is utilized as a childcare facility. In such cases, U.S. Department of Housing and Urban Development (HUD) limit of $40 \text{ ug}/\text{ft}^2$ on floors and $250 \text{ ug}/\text{ft}^2$ on windowsills should be observed. There is no child care provided at this facility.

Lead bulk, surface and air samples were collected. The following is a summary of the sample results from this survey.

- Surface levels of lead were above the recommended guideline of $200 \text{ ug}/\text{ft}^2$ in the following locations:
 - Converted Firing Range Floor
 - Converted Firing Range- Cabinet
 - Converted Firing Range-Light Fixture
 - Converted Firing Range-Outside Entrance
 - Drill Hall/Arena- Emergency Light South
 - Drill Hall/Arena- Phone Box
 - Drill Hall/Arena- Outside Entrance Floor
 - Lobby- Coke Machine
 - Family Assistance Center- Window Sill
 - 3rd Floor- Window- Sill
 - Dining Room- Wall Heater

Cleaning procedures should be improved to maintain lead levels on surfaces below the recommended guideline of $200 \text{ ug}/\text{ft}^2$.

- Air samples for lead were below the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit of 50 micrograms per cubic meter (ug/m^3).
- Two bulk samples of peeling paint were collected from Office C15 and Family Assistance Center walls. These samples contained 0.14% and 0.10% Pb (lead) respectively. This is less than the Environmental Protection Agency (EPA) definition of lead-based paint of 0.5%. However, all areas of peeling paint should be properly repaired.

Section 4.0 Lighting

A lighting assessment was conducted throughout the facility. Measurements were collected using a Cooke Cal-Light 400L Precision Light Meter (Serial No. K98364). The light meter was last calibrated in April 2012. Measurements collected were compared to ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

Light Survey Assessment Summary

Location	Foot Candles (FC)	Recommended Lighting (FC)	Sufficient Lighting
Armorer's Office	41.3	30-50	Yes
Corridor- 1 st Floor	5.3	5	Yes
Recruiting Office	35.1	30-50	Yes
Lobby	21.1	10	Yes
2 nd Floor Dining	34.1	10	Yes
Exercise Room	53.6	30	Yes
C19 Exercise Room	43.1	30	Yes
C15 Office	34.8	30-50	Yes
Corridor 2 nd Floor	10.6	5	Yes
C12 Office	32.1	30-50	Yes
C9 Office	41.3	30-50	Yes
C9-A Office	38.5	30-50	Yes
C2 Office	30.8	30-50	Yes
C3 Office	36.3	30-50	Yes
C8 Office	28.2	30-50	No
C6 Office	44.2	30-50	Yes
Elevator	34.2	5	Yes
Basement Storage-Bulk	25.3	10	Yes
Food Services Dining	42.1	10	Yes
Food Services Prep	59.1	50	Yes
Food Services Storage A	35.3	5	Yes
Food Services Storage B	63.2	5	Yes
FAC Office Main	27.2	30-50	No
FAC Office A	25.3	30-50	No
FAC Office B	31.3	30-50	Yes
Cmdr. C Company Medical Training	30.1	30-50	Yes
Recruiting East Office	32.7	30-50	Yes
Women's Toilet	45.7	5	Yes
Boiler Room	16.2	30	No
Electrical Room A	5.1	30	No
Electrical Room B	6.3	30	No
Women's Locker Room	82.5	7	Yes
Men's Locker Room	55.1	7	Yes
Drill Hall/Arena	30.5	10	Yes

Table Notes:

1. FC = Foot Candles
2. **Bolded** results did not meet listed criteria

Source: ANSI/IESNA RP-7-01 Lighting Industrial Facilities and RP-1-04 Office Lighting.

The lighting level did not meet the minimum recommended guideline in the Food Services Preparation area, Classroom 1, Boiler Room, and Storage Room 164. Lighting should be improved in these areas.

Section 5.0 Indoor Air Quality

Survey measurements were made for ventilation and comfort parameters (carbon dioxide, temperature, carbon monoxide and relative humidity). The air quality measurements were collected using direct reading instrumentation for comfort parameters using a QTRAK IAQ Meter, Model 7565 (Serial #02041015). The IAQ Meter was last calibrated in August 2012.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) have developed indoor air quality guidelines for mechanically ventilated office buildings and commercial settings (ASHRAE standard 62.1-2010). ASHRAE specifies temperature for human comfort (ASHRAE 55-2010). The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation, recommends maintaining a relative humidity range between 30 to 60%.

The following table summarizes the measurements collected.

IAQ Assessment Summary

Location	Temperature (°F)	Relative Humidity (%)	Carbon Dioxide (ppm)	Carbon Monoxide (ppm)
Outdoors	43.5	84.9	518	0.0
Armorer's Office	77.7	28.0	680	0.0
Recruiting Office	81.1	22.8	588	0.0
C2 Office	79.3	24.6	505	0.0
Criteria	68-79	30-60	<1,218	<9

Table Notes:

1. **Bolded** results exceed listed criteria
2. **ppm** = parts per million
3. **(%)** = percent relative humidity
4. **F** = degrees Fahrenheit

Sources: The American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE) 55-2010, 62.1-2010, Environmental Protection Agency (EPA) National Ambient Air Quality Standard (NAAQS) & The US Army Technical Guide 277 Army Facilities Management Information Document on Mold Remediation.

Summary of findings and recommendations:

- Temperature measurements were above the recommended 79°F in two areas. Temperature should be maintained at 68-79 °F.
- Relative humidity levels were below the recommended guidelines in three sampled areas. Low relative humidity can cause the drying of the mucous tissues and an increased susceptibility to respiratory infection. Relative humidity should be maintained at 30-60%.

- Carbon dioxide levels were measured to evaluate building ventilation or the introduction of outdoor air into the building. The recommended ceiling is obtained by adding 700 ppm to the measured outdoor carbon dioxide level for this survey. For this survey, carbon dioxide levels did not exceed the recommended ceiling of 1,218 ppm. This is an indication that outdoor air ventilation is adequate.
- Carbon monoxide levels measured were less than the recommended ceiling of 9 ppm. The recommended ceiling of 9 ppm referenced in the above table is the National Ambient Air Quality Standard for carbon monoxide.
- A visual inspection was conducted throughout accessible portions of the facility to assess sources or pathways of factors potentially deleterious to IAQ. The following observations were noted:
 - Overall housekeeping was fair. Dirt and dust were evident in many areas.
 - Water-stained ceiling tiles were observed in the facility. All sources of water infiltration should be identified and repaired. Water stained ceiling tile should be removed and replaced.
 - Chipped and peeling paint was observed on walls and ceilings in several areas of the facility. All areas of peeling paint should be properly repaired. Samples were collected for lead paint analysis.

Section 6.0 Suspect Asbestos Containing Building Materials

The following suspect Asbestos Containing Material (ACM) was noted at the time of this survey:

1. A total of approximately 500 square feet of suspect ACM insulation boiler breeching was observed. Several small areas were damaged. A sample was collected for analysis. Sample results indicate no asbestos was detected.
2. Approximately 3,000 to 4,000 square feet of suspect ACM floor tile was observed in Halls and many of the rooms. The flooring was intact and in good condition.

Inaccessible areas such as behind walls or crawlspaces were not inspected. ACM could potentially be present in these areas.

Section 7.0 Equipment

The following equipment was utilized during this survey. All sampling equipment was properly calibrated prior to use and verified for accuracy as applicable. See daily reports and calibrations logs for detailed information.

Equipment	Serial #	Calibration Date	Value
TSI QTrak IAQ Meter	02041015	8/2012	NA
Cal Light 400 Light Meter	K98364	4/2012	NA
TSI 4199 Calibrator	41460827002	8/2012	NA
SKC Air Sampling Pump	647631	3/11/13	2.59 LPM
SKC Air Sampling Pump	647610	3/11/13	2.62 LPM

Section 8.0 Limitations

This report summarizes our evaluation of the conditions observed at the above referenced location. Our findings are based upon our observations and sampling results obtained at the facility at the time of our visit. The report, results, and subsequent recommendations reported herein are also limited to the information available at the time it was prepared and investigated. Conditions may have been in effect prior to the sampling events that have changed over time and which cannot be predicted within the scope of this limited investigation. Any conditions discovered which deviate from the data contained in this report should be presented to us for our evaluation.

This report is intended for the exclusive use of the client. This report and the findings herein shall not, in whole or in part, be relied upon by any other parties, disseminated or conveyed to any other party without prior written consent of the National Guard Bureau, and Compliance Management International, Inc. The findings are relative to the dates of our site visits and should not be relied upon for substantially later dates.

Appendix A. Laboratory Analysis Report



CERTIFICATE OF ANALYSIS

Client:	National Guard Bureau	Job Name:	3KNJ IH Survey	Chain Of Custody:	515353
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation	Job Location:	Jersey City	Date Analyzed:	3/25/2013
	Havre de Grace, Maryland 21078	Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003		

Attention: Non-Responsive

Page 1 of 1

Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Asbestos	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Asbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Type	Sample Color	Homogeneity	Analyst ID	Comments
13045328	27	NAD	--	--	--	--	20	--	--	--	--	80	NP	Off-White	Homogeneous	LBP	

The following footnotes only apply to those samples which the total asbestos result is flagged with a note number.

- 1 TEM RECOMMENDATION - Please note, due to resolution limitations with optical microscopy and/or interference from matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos. It is recommended that the additional analytical technique of TEM be used to check for asbestos fibers below the resolution limits of optical microscopy.
- 2 MATRIX REDUCTION RECOMMENDATION - Please note, due to interference from the matrix components of this sample, results which are reported via PLM as negative or trace (<1%) for asbestos may contain a significant quantity of asbestos which is obscured from view. It is recommended that the additional preparation technique of gravimetric reduction be performed on this sample to minimize the obscuring effects of matrix components, followed by reanalysis by PLM and/or TEM.

Analysis Method - EPA/600/R-93/116 dated July 1993

NAD = "No Asbestos Detected" TR = "Trace equals less than 1% of this component"

Uncertainty: For samples containing asbestos in range of 1-10% the CV is 0.43, 11-35% CV=0.55, >35 CV=0.23

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Technical Director

Non-Responsive

Analyst(s)

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP accreditation applies only to polarized light microscopy of bulk samples and transmission electron microscopy of AHERA air samples. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NVLAP or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

515353

(Please Refer to this
Number For Inquiries)**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY**Mailing/Billing Information:**

- Client Name: National Guard Bureau
- Address 1: 301-1H Old Bay Lane
- Address 2: Attn: NGB-ARS-JHNE
- Address 3: Havre de Grace Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- 3KNJ 1H Survey
- JERSEY CITY
- Job #: W912K6-09-A-0003
- Contact Person: **Non-Responsive**
- Non-Responsive**

Reporting Information (Results will be provided as soon as technically reasonable).**AFTER HOURS (must be pre-scheduled)**

- ☐ Immediate Date Due: _____
- ☐ 24 Hours Time Due: _____
- Comments: _____

- ☐ Immediate ☐ 3 Day ☐ Results Required By Noon
- ☒ Next Day ☒ 5 Day + (Every Attempt Will Be Made to Accomodate)
- ☒ 2 Day **NRM** Date Due: 3/25/13

REPORT TO:

- ☒ Include COC/Field Data Sheets with Report
- ☒ **Non-Responsive** complianceplace.com
- ☐ Fax: us.army.mil
- ☐ Verb: us.army.mil

ASBESTOS ANALYSIS**PCM Air - Please Indicate Filter Type:**

- ☐ NIOSH 7400 (QTY)
- ☐ Fiberglass (QTY)

TEM Air - Please Indicate Filter Type:

- ☐ AHERA (QTY)
- ☐ NIOSH 7402 (QTY)
- ☐ Other (specify) _____ (QTY)

PLM Bulk

- ☒ EPA 600 - Visual Estimate (QTY)
- ☐ EPA Point Count (QTY)
- ☐ NY State Friable 198.1 (QTY)
- ☐ Grav. Reduction ELAP 198.6 (QTY)
- ☐ Other (specify) _____ (QTY)

MISC

- ☐ Vermiculite
- ☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield (QTY)
- ☐ NY State PLM/TEM (QTY)
- ☐ Residual Ash (QTY)

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY)
- ☐ Quan. (s/area) Vacuum D5755-95 (QTY)
- ☐ Quan. (s/area) Dust D6480-99 (QTY)

TEM Water

- ☐ Qual. (pres/abs) (QTY)
- ☐ ELAP 198.2/EPA 100.2 (QTY)
- ☐ EPA 100.1 (QTY)

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples _____ °C)

VEHICLE ANALYSIS

- ☐ Pb Paint Chip 2 (QTY)
- ☒ Pb Dust Wipe (wipe type GHOST) 21 (QTY)
- ☒ Pb Air 3 (QTY)
- ☐ Pb Soil/Solid _____ (QTY)
- ☐ Pb TCLP _____ (QTY)
- ☐ Drinking Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
- ☐ Waste Water ☐ Pb _____ (QTY) ☐ Cu _____ (QTY) ☐ As _____ (QTY)
- ☐ Pb Furnace (Media _____) (QTY)

BIOTERRORISM

- Collection Apparatus for Spore Traps/Air Samples: _____
- Collection Media _____
- ☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
- ☐ Surface Swab _____ (QTY) ☐ Culturable ID Genus (Media _____) (QTY)
- ☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) (QTY)
- ☐ Other (Specify) _____ (QTY)

CLIENT CONTACT**(LABORATORY STAFF ONLY)**

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOI D	AIR	BULK	DUST	WATER	OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
1	ARMOR'S OFF.	3/11/13	661					X		X										
2	DRILL HALL		681					X		X										
3	Blank							X		X										
4	CFR FLOOR			100cm ²				X												
5	CFR CABINET							X												
6	CFR LIGHT Fixture							X												
7	CFR OUTSIDE ENT.							X												
8	AG microwave							X												
9	DRILL FLOOR STR.							X												
10	DRILL EMERGENCY S							X												
11	DRILL Phone Box N							X												
12	DRILL FLOOR @ ENTRANCE							X												

LABORATORY**STAFF ONLY:**

Posted to NGB FOIA

May 2018

1. Date/Time RCVD: 3/18/13 @ 945 Via: FEDEX By (Print): **Non-Responsive**2. Date/Time Analyzed: 3/25/13 @ 1510 By (Print): Tom Burton Sign: Tom Burton3. Reading Reported To: Shirley Champagne Date: 3/25/134. Comments: 7945 0135 1035Requested Record # 115-0095 (NH)

Released by National Guard Bureau



AMA Analytical Services, Inc.
Focused on Results www.amalab.com
AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquiries) 515353

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-1H Old Bay Lane
3. Address 2: Attn: NGB-ARS-JHNE
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. 3K NJ
2. Jersey City
3. Job #: W912K6-09-A-0003
4. Contact Person: Non-Responsive Phone #: (410) 942-0273
5. Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		<input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Next Day <input type="checkbox"/> 2 Day		<input type="checkbox"/> 3 Day <input type="checkbox"/> 5 Day + Date Due: _____		<input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate)		REPORT TO: <input checked="" type="checkbox"/> Include with Report <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Ver: _____	
--	--	--	--	---	--	--	--	--	--

ASBESTOS ANALYSIS

PCM Air - Please Indicate Filter Type:
☐ NIOSH 7400 (QTY) _____
☐ Fiberglass (QTY) _____
TEM Air - Please Indicate Filter Type:
☐ AHERA (QTY) _____
☐ NIOSH 7402 (QTY) _____
☐ Other (specify) _____ (QTY) _____
PLM Bulk
☒ EPA 600 - Visual Estimate (QTY) _____
☐ EPA Point Count (QTY) _____
☐ NY State Friable 198.1 (QTY) _____
☐ Grav. Reduction ELAP 198.6 (QTY) _____
☐ Other (specify) _____ (QTY) _____
MISC
☐ Vermiculite
☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

☐ ELAP 198.4/Chatfield (QTY) _____
☐ NY State PLM/TEM (QTY) _____
☐ Residual Ash (QTY) _____

TEM Dust

☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
☐ Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

☐ Qual. (pres/abs) (QTY) _____
☐ ELAP 198.2/EPA 100.2 (QTY) _____
☐ EPA 100.1 (QTY) _____

☐ All samples received in good condition unless otherwise noted.
 (TEM Water samples _____ °C)

VERMICULITE ANALYSIS

☐ Pb Paint Chip 2 (QTY) _____
☒ Pb Dust Wipe (wipe type chest) 21 (QTY) _____
☒ Pb Air 3 (QTY) _____
☐ Pb Soil/Solid (QTY) _____
☐ Pb TCLP (QTY) _____
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY) _____
☐ Pb Furnace (Media _____) (QTY) _____

SPORE TRAP ANALYSIS

Collection Apparatus for Spore Traps/Air Samples: _____
 Collection Media _____
☐ Spore-Trap (QTY) _____
☐ Surface Swab (QTY) _____
☐ Surface Tape (QTY) _____
☐ Other (Specify) _____ (QTY) _____
☐ Surface Vacuum Dust (QTY) _____
☐ Culturable ID Genus (Media _____) (QTY) _____
☐ Culturable ID Species (Media _____) (QTY) _____

CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/ IDENTIFICATION	DATE	VOLUME (LITERS)	WIPE AREA	TEM	PCM	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHER	SPORE TRAP	TAPE	SWAB	Date/Time:	Contact:	By:
13	Lobby Coke Machine	3/14/13		100 cm ²				X											
14	1ST FLOOR Hall Floor																		
15	Recruiting Shelf																		
16	FAC Window Sill																		
17	COG CMDR OFF CABINET																		
18	C2 Bookshelf																		
19	C9 Window Sill																		
20	2ND FLOOR HALL FLOOR - copier																		
21	C18 Counter																		
22	3RD FLOOR Window Sill																		
23	Kitchen Frig																		
24	Dining Heater																		

LABORATORY

STAFF ONLY:

Posted to NGB FOIA Reading Room
May, 2018

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____
 2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____
 3. Results Reported To: _____ Date: _____ / _____ / _____
 4. Comments: _____

BEST AVAILABLE COPY

Time: _____ Initials: _____
 FOIA Requested Record #J-15-0085 (NH)
 Released by National Guard Bureau



AMA Analytical Services, Inc.

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY

(Please Refer To This
Number For Inquires)

515353 3 of 3

Mailing/Billing Information:

1. Client Name: National Guard Bureau
2. Address 1: 301-1H Old Bay Lane
3. Address 2: Attn: NGB-ARS-IHNE
4. Address 3: Havre de Grace, Maryland 21078
5. Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

1. ~~Subcontractor~~ 3K NJ
2. ~~Project Location~~ Jersey City
3. Job #: ~~Non-Responsive~~ W912K6-09-A-0003
4. Contact Person ~~Non-Responsive~~
5. ~~Subcontractor~~

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		Normal Business Hours <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> Next Day <input type="checkbox"/> 5 Day + <input type="checkbox"/> 2 Day Date Due: _____ <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accomodate)		<input checked="" type="checkbox"/> Include with Report <input checked="" type="checkbox"/> SHA Non-Responsive <input type="checkbox"/> Fax: _____ <input type="checkbox"/> Verb _____	Report to: with Report: <u>@complanet.pla.com</u> <u>@us.army.mil</u> <u>@us.army.mil</u>
--	--	---	--	---	--

Asbestos analysis

PCM Air – Please Indicate Filter Type:

- ☐ NIOSH 7400 _____ (QTY)
☐ Fiberglass _____ (QTY)

TEMAir – Please Indicate Filter Type:

- ☐ AHERA _____ (QTY)
☐ NIOSH 7402 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

PLM Bulk

- ☒ EPA 600 - Visual Estimate _____ (QTY)
☐ EPA Point Count _____ (QTY)
☐ NY State Friable 198.1 _____ (QTY)
☐ Grav. Reduction ELAP 198.6 _____ (QTY)
☐ Other (specify _____) _____ (QTY)

MISC

- ☐ Vermiculite _____
☐ Asbestos Soil PLM____(Qual) PLM____(Quan) PLMTEM____(Qual) PLMTEM____(Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield _____ (QTY)
☐ NY State PLM/TEM _____ (QTY)
☐ Residual Ash _____ (QTY)

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust _____ (QTY)
☐ Quan. (s/area) Vacuum D5755-95 _____ (QTY)
☐ Quan. (s/area) Dust D6480-99 _____ (QTY)

TEM Water

- ☐ Qual. (pres/abs) _____ (QTY)
☐ BLAP 198.2/EPA 100.2 _____ (QTY)
☐ EPA 100.1 _____ (QTY)

☐ All samples received in good condition unless otherwise noted.
(TEM Water samples _____ °C)

Medical Analysis

- ☐ Pb Paint Chip 2 (QTY)
☐ Pb Dust Wipe (wipe type CHOST) 21 (QTY)
☐ Pb Air 3 (QTY)
☐ Pb Soil/Solid (QTY)
☐ Pb TCLP (QTY)
☐ Drinking Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Waste Water ☐ Pb (QTY) ☐ Cu (QTY) ☐ As (QTY)
☐ Pb Furnace (Media) (QTY)

Empirical analysis

Collection Apparatus for Spore Traps/Air Samples:

Collection Media

- ☐ Spore-Trap _____ (QTY) ☐ Surface Vacuum Dust _____ (QTY)
☐ Surface Swab _____ (QTY) ☐ Culturable ID Genus (Media _____) (QTY)
☐ Surface Tape _____ (QTY) ☐ Culturable ID Species (Media _____) (QTY)
☐ Other (Specify _____) (QTY)

CLIENT CONTACT

(LABORATORY STAFF ONLY)

NUMBER	IDENTIFICATION		DATE	LITERS	AREA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
25	CIS	WALL	3/11/13																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

LABORATORY
STAFF ONLY:

1. Date/Time RCVD: _____ / _____ / _____ @ _____ Via: _____ By (Print): _____ Sign: _____
2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____
3. Results Reported To: _____ Via: _____ Date: _____ / _____ / _____ Time: _____ Initials: _____
Reading Room BEST AVAILABLE COPY FOIA Requested Record #J-15-0085 (H)
4. Comments: _____
Released by National Guard Bureau

Posted to NGB FOIA Reading Room
May, 2018

~~BEST AVAILABLE COPY~~ Via

Time: _____ Initials: _____
FOIA Requested Record # 15-0085 (NH)

Released by National Guard Bureau



CERTIFICATE OF ANALYSIS



Client:	National Guard Bureau	Job Name:	3KNJ IH Survey	Chain Of Custody:	515353
Address:	301-IH Old Bay Lane, Attn: ARNG-CJG-P, State Military Reservation Havre de Grace, Maryland 21078	Job Location:	Jersey City	Date Submitted:	3/18/2013
		Job Number:	Not Provided	Person Submitting:	Non-Responsive
		P.O. Number:	W912K6-09-A-0003	Date Analyzed:	3/25/2013
Attention:	Non-Responsive			Report Date:	3/25/2013

Summary of Atomic Absorption Analysis for Lead

Page 1 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13045302	1	Flame	Air	661	N/A	4.5 ug/m ³	<3	<4.5 ug/m ³	
13045303	2	Flame	Air	681	N/A	4.4 ug/m ³	<3	<4.4 ug/m ³	
13045304	3	Flame	Air Blank	0	N/A	3 ug/m ³		<3 ug	
13045305	4	Flame	Wipe	****	0.108	110 ug/ft ²	230	2100 ug/ft ²	
13045306	5	Flame	Wipe	****	0.108	110 ug/ft ²	130	1200 ug/ft ²	
13045307	6	Flame	Wipe	****	0.108	110 ug/ft ²	53	500 ug/ft ²	
13045308	7	Flame	Wipe	****	0.108	110 ug/ft ²	310	2800 ug/ft ²	
13045309	8	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045310	9	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045311	10	Flame	Wipe	****	0.108	110 ug/ft ²	240	2200 ug/ft ²	
13045312	11	Flame	Wipe	****	0.108	110 ug/ft ²	50	460 ug/ft ²	
13045313	12	Flame	Wipe	****	0.108	110 ug/ft ²	59	550 ug/ft ²	
13045314	13	Flame	Wipe	****	0.108	110 ug/ft ²	23	210 ug/ft ²	
13045315	14	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045316	15	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045317	16	Flame	Wipe	****	0.108	110 ug/ft ²	22	200 ug/ft ²	
13045318	17	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045319	18	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045320	19	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.



CERTIFICATE OF ANALYSIS



Client: National Guard Bureau Job Name: 3KNJ IH Survey Chain Of Custody: 515353
 Address: 301-IH Old Bay Lane, Attn: ARNG-CJG-P, Jersey City Date Submitted: 3/18/2013
 Havre de Grace, Maryland 21078 Job Number: Not Provided Person Submitting: **Non-Responsive**
 P.O. Number: W912K6-09-A-0003 Date Analyzed: 3/25/2013 Report Date: 3/25/2013
 Attention: **Non-Responsive**

Summary of Atomic Absorption Analysis for Lead

Page 2 of 2

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Area Wiped (ft ²)	Reporting Limit	Total ug	Final Result	Comments
13045321	20	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045322	21	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045323	22	Flame	Wipe	****	0.108	110 ug/ft ²	660	6200 ug/ft ²	
13045324	23	Flame	Wipe	****	0.108	110 ug/ft ²	<12	<110 ug/ft ²	
13045325	24	Flame	Wipe	****	0.108	110 ug/ft ²	24	230 ug/ft ²	
13045326	25	Flame	Paint Chip	****	N/A	0.0086 %Pb		0.14 %Pb	
13045327	26	Flame	Paint Chip	****	N/A	0.009 %Pb		0.1 %Pb	

Analysis Method for Flame: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7000B; Water: SM-3111B
 Analysis Method For Furnace: Air, Wipes, Paints, and Soil/Solids: EPA 600/R-93/200(M)-7010; Water: SM-3113B
 N/A = Not Applicable mg/Kg = parts per million (ppm) on a dry weight basis mg/L = parts per million (ppm)
 %Pb = percent lead on a dry weight basis ug = micrograms ug/L = parts per billion (ppb)

See QC Summary for analytical results of quality control samples associated with these samples.

Note: All samples were received in good condition unless otherwise noted.

Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result.

Air and Wipe results are not corrected for any blank results

Final results for air and wipe samples are based on client supplied information nor verified by this laboratory.

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.

Non-Responsive

Analyst:

Technical Manager:

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from us. Sample types, locations, and collection protocols are based upon the information provided by the persons submitting them and, unless collected by personnel of these Laboratories, we expressly disclaim any knowledge and liability for the accuracy and completeness of this information. Residual sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. This report must not be used to claim, and does not imply product certification, approval, or endorsement by NY ELAP, AIHA, or any agency of the Federal Government. All rights reserved. AMA Analytical Services, Inc.

515353

(Please Refer to This
Number For Inquiries)**AMA Analytical Services, Inc.**

Focused on Results www.amalab.com

AIHA (#100470) NVLAP (#101143-0) NY ELAP (10920)

4475 Forbes Blvd. • Lanham, MD 20706

(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643

CHAIN OF CUSTODY**Mailing/Billing Information:**

- Client Name: National Guard Bureau
- Address 1: 301-1H Old Bay Lane
- Address 2: Attn: NGB-ARS-IHNE
- Address 3: Havre de Grace, Maryland 21078
- Phone #: (410) 942-0273 Fax #: (410) 942-0254

Submittal Information:

- 3KNJ 1H Survey
- JERSEY CITY
- Job #: W912K6-09-A-0003
- Contact Person: Non-Responsive @ phone #: (410) 942-0273
- Non-Responsive

Reporting Information (Results will be provided as soon as technically feasible):

AFTER HOURS (must be pre-scheduled) <input type="checkbox"/> Immediate Date Due: _____ <input type="checkbox"/> 24 Hours Time Due: _____ Comments: _____		REPORTING INFORMATION <input type="checkbox"/> Immediate <input type="checkbox"/> 3 Day <input type="checkbox"/> Results Required By Noon (Every Attempt Will Be Made to Accommodate) <input checked="" type="checkbox"/> Next Day <input checked="" type="checkbox"/> 5 Day + <u>3/25/13</u> <input type="checkbox"/> 2 Day <u>MEM</u> Date Due: _____		REPORT TO: <input checked="" type="checkbox"/> In _____ with Report <input type="checkbox"/> _____ @ <u>complianceplace.com</u> <input type="checkbox"/> _____ @ <u>us.army.mil</u> <input type="checkbox"/> _____ @ <u>us.army.mil</u>
--	--	---	--	--

PCMAIR - Please Indicate Filter Type:

- ☐ NIOSH 7400 (QTY) _____
- ☐ Fiberglass (QTY) _____

TEM Air - Please Indicate Filter Type:

- ☐ AHRA (QTY) _____
- ☐ NIOSH 7402 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

PLM Bulk

- ☒ EPA 600 - Visual Estimate (QTY) _____
- ☐ EPA Point Count (QTY) _____
- ☐ NY State Friable 198.1 (QTY) _____
- ☐ Grav. Reduction ELAP 198.6 (QTY) _____
- ☐ Other (specify) _____ (QTY) _____

MISC

- ☐ Vermiculite
- ☐ Asbestos Soil PLM (Qual) PLM (Quan) PLM/TEM (Qual) PLM/TEM (Quan)

TEM Bulk

- ☐ ELAP 198.4/Chatfield (QTY) _____
- ☐ NY State PLM/TEM (QTY) _____
- ☐ Residual Ash (QTY) _____

TEM Dust

- ☐ Qual. (pres/abs) Vacuum/Dust (QTY) _____
- ☐ Quan. (s/area) Vacuum D5755-95 (QTY) _____
- ☐ Quan. (s/area) Dust D6480-99 (QTY) _____

TEM Water

- ☐ Qual. (pres/abs) (QTY) _____
- ☐ ELAP 198.2/EPA 100.2 (QTY) _____
- ☐ EPA 100.1 (QTY) _____

☒ All samples received in good condition unless otherwise noted.
(TEM Water samples _____ °C)

Wipes Analysis

- ☐ Pb Paint Chip 2 (QTY) _____
- ☒ Pb Dust Wipe (wipe type GHOST) 21 (QTY) _____
- ☒ Pb Air 3 (QTY) _____
- ☐ Pb Soil/Solid (QTY) _____
- ☐ Pb TCLP (QTY) _____
- ☐ Drinking Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
- ☐ Waste Water ☐ Pb (QTY) _____ ☐ Cu (QTY) _____ ☐ As (QTY) _____
- ☐ Pb Furnace (Media _____) (QTY) _____

Spore Traps Analysis

- Collection Apparatus for Spore Traps/Air Samples: _____
Collection Media: _____
- ☐ Spore-Trap (QTY) _____
 - ☐ Surface Vacuum Dust (QTY) _____
 - ☐ Surface Swab (QTY) _____
 - ☐ Culturable ID Genus (Media _____) (QTY) _____
 - ☐ Surface Tape (QTY) _____
 - ☐ Culturable ID Species (Media _____) (QTY) _____
 - ☐ Other (Specify) _____ (QTY) _____

CLIENT CONTACT

(LABORATORY STAFF ONLY)

CLIENT ID NUMBER	SAMPLE LOCATION/IDENTIFICATION	DATE	VOLUME (LITERS)	WIPB AREA	TEM	PCMAIR	PLM	LEAD	MOLD	AIR	BULK	DUST	WATER AND OTHERS	SPORE TRAP	TAPE	SWAB	Date/Time	Contact	By
1	ARMOR'S OFF.	3/11/13	661					X		X									
2	DRILL HALL		681					X		X									
3	Blank							X		X									
4	CFR FLOOR			100 cm ²				X											
5	CFR CABINET							X											
6	CFR Light Fixture							X											
7	CFR outside ENT							X											
8	AG microwave							X											
9	DRILL FLOOR CTR							X											
10	DRILL EMERGENCY S							X											
11	DRILL Phone Box N							X											
12	DRILL FLOOR @ ENTWAY							X											

LABORATORY**STAFF ONLY:**

Posted to NGB FOIA Request Report To: _____
May, 2018

1. Date/Time RCVD: 3/18/13 @ 945 Via: FEDEX By (Print): _____

2. Date/Time Analyzed: _____ / _____ / _____ @ _____ By (Print): _____ Sign: _____

4. Comments: 7945 0135 1035

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Non-Responsive

FOIA Requested Record #3-15-0085 (NH)

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