

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 07, 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company A 230th Support Battalion, ATTN: SSG **Non-Responsive** 320 East Main Street, Benson, North Carolina 27504-0307.

SUBJECT: Industrial Hygiene Survey of the Benson National Guard Armory, Benson, North Carolina.

1. References.

- a. Report submitted 21 November 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. **Non-Responsive** of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR

COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

November 21, 2001

MEMORANDUM FOR: Detachment 1, Company A, 230th Support Battalion, ATTN: SSG  
**Non-Responsive** 320 East Main Street, Benson, North Carolina 27504- 0307

SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Benson NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

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**SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina**

3. **Background.** At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Benson National Guard Armory in Benson, North Carolina on 18 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. **Facility Description.** This facility houses Detachment 1, Company A, 230 Support Battalion. This is a Transportation Support unit. The Armory has three full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000 hours. Soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The Armory is utilized for drills on the weekend. The building was constructed in the 1950s. The facility houses eleven administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

5. **Findings.**

a. Material Safety Data Sheets (MSDS) were not readily available on chemicals that are in use by this Armory. A binder of MSDSs was located in the supply room. The assistant NCO had limited knowledge of the MSDSs. The Readiness NCO received Hazard Communication Training in August 2001.

b. A deactivated Indoor Firing Range was converted into a large storage area. Original acoustic material is present on the walls. The range's mechanical exhaust has been rendered non-operational. The floor is concrete. The target holders are present. Excess office supplies and equipment for turn-in is stored in the range. A weight lifting area is located near the range Pit. The range was decontaminated and cleared October 20, 1995. Five bags of sand weighing 10,140 pounds were removed. Six wipe samples for Lead were taken (Table 1). Two of the six samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3,6).

Table 1

Sample Number	Sample Location	Results
160	Backstop, left, 2 ft from floor	<20.00 mg/ft <sup>2</sup>
161	Backstop, middle, 5 ft from floor	<20.00 mg/ft <sup>2</sup>
162	Backstop, right, 7 ft from floor	28.90 mg/ft <sup>2</sup>
163	Pit floor, right	2997.45 mg/ft <sup>2</sup>
164	Pit floor, middle	3841.72 mg/ft <sup>2</sup>
165	Target holder, second from left	96.89 mg/ft <sup>2</sup>

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SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina

c. The Arms room located within the Supply Room was visually surveyed. Meters, Night vision, and Alarms are stored at the units Headquarters. There was no evidence of weapons repair within the Arms room. Personnel stated that accountability and issuing of weapons are performed in this area. There is no ventilation system located within this room. Dehumidifier was operating. Personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

d. The Drill Hall is used primarily for drills. Two Privately Owned Vehicles (POV) were stored in the Hall. Visual examination and interview with personnel indicated that vehicle maintenance is being performed in this area. Large accumulations of flies were present in the Hall during the survey.

e. POLs (petroleum, oil, and lubricants), hazardous chemicals and tires (belong to heavy equipment) are stored in/at various locations on the Armory Grounds. Organizational Maintenance #15 is said to be responsible for these areas. OMS #15 uses the facility once a week to repair vehicles, which belong to the Armories in the area. POLs 20 gallon and 55 gallon Containers of Oil were found stored on pallets behind the Armory. A converted communication van is used to store large quantities of POLs and weapons CLP (cleaner, lubricant and protectant). A Quonset hut is used to store tools and POLs. Tires were found improperly stored outside of the Hut. "No Smoking" signs were not posted. Fire extinguishers were not present. Large Spill kits are available and stored in the Drill Hall, but are issued to dispatched vehicles. General housekeeping of the areas was poor.

f. An ice machine was found in the Boiler room. The boiler room was relatively clean.

g. A borrowed solvent tank was found stored outside the Armory. The tank was used to clean weapons after recent weapon training. Personal Protective equipment for solvent tank operations was not available.

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SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina

6. Recommendations.

a. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. All personnel employed by the Armory should have knowledge of the location of the MSDS book. A need for Hazard Communication Training for other full time National Guard personnel should be addressed with the North Carolina Occupational Safety and Health office.

b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.) consider performing addition lead wipe sampling.

c. Discontinue weapons maintenance inside the Arms room. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. If you receive or are issued any item that contains a radioactive source, include the item on the hazardous chemical inventory. Ensure you obtain a MSDS for the radioactive material.

d. Discourage the use of the Drill Hall as a motor vehicle maintenance bay. Vehicle maintenance should be performed outside the building were ventilation is adequate and there is no risk of Carbon Monoxide fumes entering the armories ventilation system. The accumulation of flies may have been from the recent weather change in area. Keeping doors closed may preclude the entrance of flies.

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**SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina**

e. Each installation with the capacity for a release of a reportable quantity of oil or a Hazardous substance must prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan and an Installation Spill Contingency Plan (ISCP). The Spill Contingency Plan should be reviewed and updated every three years. The SPCC plan must include at a minimum spill prevention, readiness of response materials and equipment, personnel training, containment provisions, and a list of spills in past 12 months and the corrective action taken. The ISCP is a plan that describes how personnel will respond to a release. The ISCP must include names, addresses and phone numbers of Armory Spill Response Coordinator(s), location of emergency equipment and response materials, An evacuation plan, A flow chart or description of arrangements with local fire and police departments, State or local emergency response teams, A description of personnel actions and responsibilities in response to fires, explosions, or any other unplanned release of hazardous materials at the Armory. Recommend that each individual in the organization is educated on the Spill Response Procedures and the location of response equipment and Spill Plan. Contact the North Carolina Occupational Safety and Health Office for technical assistance on reviewing and or developing Spill Contingency Plans. If funding is available, considering purchasing storage buildings that is suitable for storage of POLs. The building at a minimum should have a catchment area in the floor and rated for chemical and flammable storage. OMS #15 should be contacted to assist in an inventory of the chemicals used by their facility. Include the inventory with the Armories master inventory and ensure to MSDS are posted in the Armory's book. Consider laying tires in a way, which preclude the breeding of mosquitoes and the accumulation of water. Puncture holds in the tires that are for turn-in to allow for drainage. Recommend the purchase of spill control equipment such as catchment basins and absorbent material. Place 55 gallon drums of oil in secondary containment, which has a catchment area that holds one and half times the capacity of the fluid of the drum. Secondary containment should be used in areas of operation were there is a probability for a spill. Establish better housekeeping procedures. Dispose of all excess hazardous chemicals and equipment through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

f. Per TB MED 530, Ice is considered food and all food, including ice must be protected against contamination from dust, insects.... And other sources of contamination. This applies to food being stored, prepared, transported, served or sold. The ice machine is installed in a location that is at risk of contaminating the ice. It is necessary to reevaluate the location of the ice machine.

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SUBJECT: Industrial Hygiene Survey of Benson National Guard Armory, Benson, North Carolina

g. The use of solvent tanks poses a possible health and safety threats if the operation is not properly performed. The type of solvent, the location of the tank, and the purchase of appropriate Personal Protective Equipment (PPE) must be taken into consideration when operating a solvent tank. Use a solvent with a low toxicity or low volatility. Recommend using the tank outside and away from direct sunlight; post "NO Smoking" signs; ensure the lid remains closed when not in use. Discourage the use of military NBC, surgical and /or Playtex type gloves while performing dipping operations, they do not provide the needed chemical protection. Instead, purchase gloves, aprons, and/or face shields that offer the best chemical resistance to the solvent. The North Carolina safety Office can provide assistance with the selection process.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

**Non-Responsive**

LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

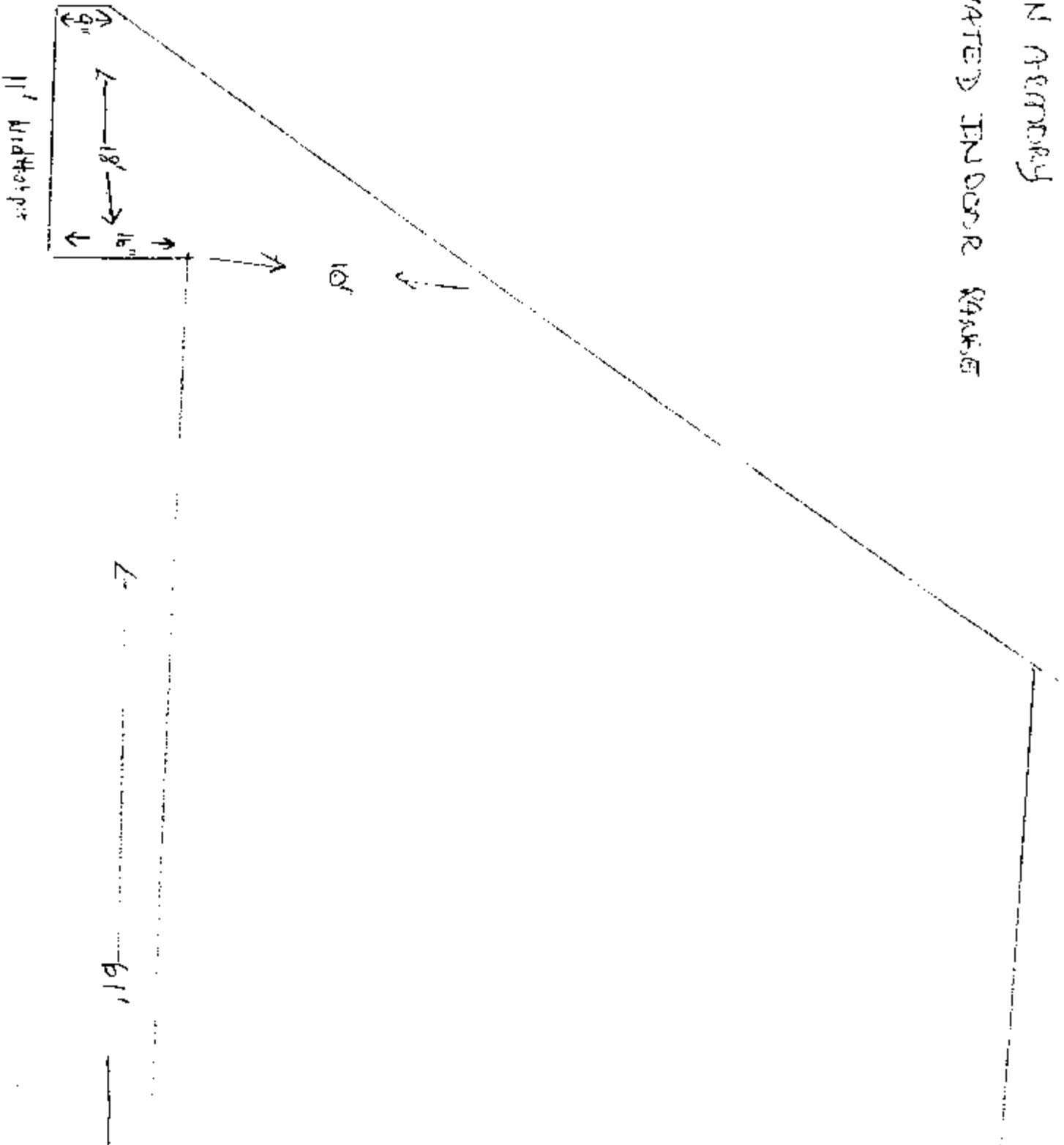
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BENSON MEMORIAL

DEACTIVATED INDOOR RANGE



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# ASSEMBLY AREA

**PARKING LOT**

**MOTOR POOL**

Z

## DRILL HALL

**MOTOR POOL**

## MOTOR POOL

**YOU ARE HERE**

**FIRE EXITS**

**FIRE  
EXTINGUISHER**

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POST IN RANGE  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF CRIME CONTROL AND PUBLIC SAFETY  
OFFICE OF THE ADJUTANT GENERAL  
NORTH CAROLINA NATIONAL GUARD



JAMES B. HUNT, JR.  
GOVERNOR

GERALD A. RUDISILL, JR.  
MAJOR GENERAL, NCARNG  
ADJUTANT GENERAL

RICHARD H. MOORE  
SECRETARY

OTAGNC-AGEO

16 APRIL 1997

MEMORANDUM FOR Benson, Beuleville, Edenton, Elizabethtown, ~~Hamlet~~, Wallace,  
Youngsville Armories

SUBJECT: Self Help Project to Complete Lead Cleaning of Indoor Ranges

1. The Environmental Section has informed me that the indoor ranges at seven armories are virtually free of any lead contamination (encl. 1). Your armory is on the list.
2. Only one task remains before your range can be declared ready for use: the interior walls of the ranges must be painted with one coat of lead free latex paint to seal any remaining lead residue. All surface areas must be covered, floor to ceiling.
3. You may speed up this process by volunteering to paint the walls with your own manpower. AGEO will provide the paint; you simply need to submit a request for materials to Non-Responsive in Purchasing. You must use a color that contrasts with the former wall color to insure that every part of the wall is sufficiently covered.
4. Once the project is complete, AGEO will permit the range to be used for storage or other pressing needs. Do not install wooden partitions and other flammable wall assemblies to create separate rooms. Interior modifications may only be allowed if the design is cleared by AGEO and confirmed to meet all building codes.
5. Contact me at Non-Responsive if you have any questions.

**Non-Responsive**

Encl :

MAJ, EN, NCARNG  
Assistant Construction and  
Facilities Management Officer

4105 REEDY CREEK ROAD, RALEIGH, NC 27607-6410, TELEPHONE (919) 664-6000, DSN 582-9210  
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**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting  
**Address:** 1218 Scattered Pine Court  
Severn, Maryland 21144

**Job Name:** Benson National Guard Armory  
**Job Location:** Not Provided  
**Job Number:** Not Provided  
**P.O. Number:** Not Provided

**Chain Of Custody:** 88405  
**Date Analyzed:** 11/13/2001  
**Person Submitting:** [REDACTED]  
**Report Date:** 13-Nov-01

**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 (ft <sup>2</sup> )	Reporting Limit	Final Result	Comments
0210792	160	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	< 20.00 ug/ft <sup>2</sup>	
0210793	161	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	< 20.00 ug/ft <sup>2</sup>	
0210794	162	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	28.90 ug/ft <sup>2</sup>	
0210795	163	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	2997.45 ug/ft <sup>2</sup>	
0210796	164	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	3841.72 ug/ft <sup>2</sup>	
0210797	165	Flame	Wipe	****	1.000	20.00 ug/ft <sup>2</sup>	96.89 ug/ft <sup>2</sup>	

Analysis Method for Flame (Wipes, Paints, Airs and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

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Detachment 1, Co A 230th Support Battalion  
Benson National Guard Armory



Rear view of the Benson NG Armory

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View of Oil stored on Pallets behind Armory



View of Tires Stored in Front of Quonset Hut

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Exterior view of Quonset Hut  
belonging to OMS #15



View inside of Converted Communications Van, storing POLS

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Downrange View of Converted Indoor Firing Range



Uprange View of Converted Indoor Firing Range

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Kern - FYI

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-15/  
ANGPAM 91-101

## Safety

# GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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## Appendices

- Sampling Strategy for Collection of Wipe Samples
- Interpretation of Sample Results (Prior to Cleaning)
- Interpretation of Sample Results (After Cleaning)
- OSHA Instruction CPL 2-2.20B
- Where to Purchase Sample Media and Containers
- AEHA Form 8-R (Bulk Sample Data)
- Instructions to Complete AEHA Form 8-R
- Examples of Computation of Lead Level from Wipe Sample Results
- Supporting Laboratories and Areas Served

## Glossary

- Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
- References**  
Related publications are listed below.
  - DODI 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - AR 11-34 (The Army Respiratory Protection Program).
  - AR 40-5 (Preventive Medicine).
  - NGP (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).

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# **APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)**

## **B-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.

## **B-2 BETWEEN 201 and 200,000 micrograms/sq ft**

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

## **B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

**B-4** High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

# **APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)**

## **C-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. The paint color must contrast the color of the present substratum.

## **C-2 ABOVE 200 micrograms/sq ft**

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**



# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION Benson N.G Armory DET 1 COA 230 SPT BN	BLDG/RM NO. 320 230 East main ST
LOCATION/CODE Administrative AA	OPERATION/CODE Adm	
SURVEY DATE 18 Oct 01	EVALUATOR (Initials) LAE	
MACOM/CODE NG	SUBMACOM/CODE	SUPERVISOR 936 Non-Responsive
TELEPHONE/DSN NO. Non-Responsive	UNIT/ORGANIZATION Benson, NC 27504-0307 DET 1 COA 230 SPT	RAC 4
FREQUENCY (hrs/day) + 8 hrs		
NO. CIV(S)	NO. MIL 3	NO. CONTRACTOR(S)
NO. LOC(S)	NO. OTHER	

## SECTION 2. FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

## SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIRLINE			/
COLD SURFACES	/	ABRASIVE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

## SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
COLUBEDIL	PETROLEUM, OIL, LUBRICANTS		
8006-61-9	GASOLINE		

## SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
8-9 # Non-Responsive	Non-Responsive			Non-Responsive	
12B		D	M		AGR
386	88M	F	M		AGR
E-5	88M	B	M		AGR

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Det. 2, Company A  
1<sup>st</sup> BN (M) 120<sup>th</sup> INF, ATTN: **Non-Responsive** 416 South Jackson Street, Beulaville,  
NC 28518.

SUBJECT: Industrial Hygiene Survey of the Beulaville National Guard Armory,  
Beulaville, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the lead levels in the deactivated Indoor Firing Range and the Drill Hall with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact Non-Res

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO Non-Responsive, Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

March 2, 2003

**Non-Responsive**

**NC Army National Guard Armory  
416 South Jackson Street  
Beulaville, NC 28518**

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**BEULAVILLE ARMORY**

**BEULAVILLE, NC**

**DATE:**

**JANUARY 14,2003**

**PREPARED BY**

**Non-Responsive**  
**583 GINGER CAKE RD**  
**FAYETTEVILLE, GA 30214**

**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

**Attachment 1 HHIM Forms**

**Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range**

**Attachment 3 Laboratory Reports: Supply air grills offices**

**Attachment 4 Photographs of the Facility**

**Attachment 5 Schematic Drawing of Facility**

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Angel M. Guardiola performed a Baseline Industrial Hygiene Survey at the NC ARNG Beulaville Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Beulaville Armory.

The building was finished in the 1950s. The facility houses Det.2 Co. A 1<sup>st</sup> BN (M) 120<sup>th</sup> INF. The armory is used by the troops of Det.2 Co. A 1<sup>st</sup> BN (M) 120<sup>th</sup> INF for their monthly weekend drills.

The Det.2 Co. A 1<sup>st</sup> BN (M) 120<sup>th</sup> INF with about 41 troops has 1 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30 PM. The facility also houses the NCOIC-Recruiter office and the area recruiter office. MSG Noble (NCOIC Recruiter) was the person that received me the day of the survey. The facility houses administrative areas, a drill hall, classrooms, a supply room, a weapons vault, a kitchen, and a deactivated Indoor Firing Range. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed for each operation. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter



### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, and drill hall. Light measurements were below IES guidelines at the recruiter office (24 FC at the lap top computer), the drill hall (4 bulbs out) and sergeant Baker office (27 FC at the computer). The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, five to six hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. None of the personnel interviewed reported any health problems related to the job.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool consisted of one pick-up truck at the time of the survey.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and some training on weekend drills. Personnel states that weapons are cleaned about 7-8 times a year in the field. The Drill Hall is rented occasionally for weddings, parties and retirement activities. Renters bring their own food. The kitchen is not used for cooking on weekend drills.

#### **Boiler Room**

The present boiler was installed about 10 years ago. It uses natural gas. Personnel said it works well. No water leakage observed at the time of the survey. It uses natural gas. Water heaters are located next to the boiler.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area, offices (three) and a garage. It was deactivated according to personnel over 20 years ago and "sanitized" around 1990 or 91. One of the six samples was above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

<b>Sample Number</b>	<b>Sample Location</b>	<b>Results</b>
41	Bullet backstop	2290ug
42	Floor in front of bullet backstop	192ug
43	Item stored in IFR	57ug
44	Item stored in IFR	74ug
45	Wall next to entrance/exit door	21ug
46	Blank	BLR

### **Weapons Vaults**

The Beulaville Armory has a weapon storage vault located in the Supply Room. The weapons list includes; M-16s. Personnel stated that accountability and issuing of weapons are performed in this area. Personnel reported that dehumidifier works all the time. Weapons are cleaned about 7-8 times a year in the field.

### **A/C System**

Central A/C unit is used to cool and heat the three administrative offices that were built in the deactivated IFR. The Supply Room also has a central A/C unit. The Classroom, Non-Responsive office and the weight room have window A/C units. The filter was checked and found very dirty. Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by personnel of the Armory and the A/C filter. All samples were below the clearance level of 200 ug/ft<sup>2</sup>.

**Table 2**

<b>Sample Number</b>	<b>Sample Location</b>	<b>Results</b>
51	Recruiter Office	BRL
52	Office Next to Recruiter (no in use)	BRL
53	NCOIC Recruiter Office	BRL
54	Filter Supply Side	31ug
55	Filter Fan Side	BLR
56	Blank	BLR

**Material Safety Data Sheets**

Unable to locate the Material Safety Data Sheets (MSDS) Book the day of the survey because **Non-Responsive** was out of the office. In a later date phone conversation with **Non-Responsive**, he reported that a private contractor went to the armory and produced an MSDS Book and a Hazardous Materials Inventory List. **Non-Responsive** expressed the need in the armory of a Flammables Cabinet and Spill Containment Kit.

**Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

**Table 3**

<b>Location</b>	<b>Light Reading (footcandles)</b>	<b>IES Recommendation (footcandles)</b>
ADO Recruiter NCOIC Office	46-77 (Avg. 56)	50-100
ADO Recruiter Office	24-42 (Avg. 36)	50-100
ADO SSG Baker Office	27-63 (Avg. 46)	50-100
Classrooms	41-58 (Avg. 51)	50-100
ADO Office Not In Use (IFR Area)	31-73 (Avg. 58)	50-100
Drill Hall	11-21 (Avg. 12)	30
Office Next To Locker Room	38-87 (Avg. 59)	50-100

Light measurements were below IES guidelines at the recruiter office (24 FC at the lap top computer no windows), the drill hall (4 bulbs out) and sergeant Baker office (27 FC at the computer). Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.

- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where the light measurements were below the recommended standard (as represented in Table 3). Replace burned-out bulbs in the Drill Hall.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- The A/C filter should be replaced in a timely manner according to manufacturer recommendation.
- A request should be made through the proper channels for the acquisition of a Flammables Cabinet and a Spill Containment Kit.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And that personnel is enrolled in hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

BEST AVAILABLE COPY

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Beulaville NC Armory c. BLDG/RM NUMBER NC01C - Account Office  
d. LOCATION/CODE NC01C - Accounting, Computer work about 2 hrs daily. Travels frequently e. OPERATION/CODE  
f. DESCRIPTION  
g. MACOM/CODE NG h. OM/CODE 1 i. SUPERVISOR  
j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. PAC 1 l. FREQUENCY (Hrs Per Day)  
m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOT-S  
e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 1-14-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>46-77 FC; Arg. 56</u>	<u>FC</u>	<u>58-100</u>	<u>Adgt</u>

h. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH FC NO	R/A
DISPOSABLE			
W/ FACE AIR PURIFYING			
W/ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>PO VDT</u>	<u>Daily use of computers for long periods of time</u>	<u>3</u>	

## BEST AVAILABLE COPY

PERSONNEL DATA

AGR

**COMMENTS** (Add blank sheet of paper if necessary)

**• PRIVACY ACT STATEMENT**

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

**Signature**



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SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Boulaville Army BLDG/RM NUMBER Recruits Office  
c. LOCATION/CODE AA d. OPERATION/CODE ADG e. DESCRIPTION Recruits, away from 57% of time, Computer work about 2 hrs/day, Arms 1 hr.  
f. SUPERVISOR Non-Responsive  
g. MACOM/CODE NG h. TELEPHONE/AUTOVON NUMBER Non-Responsive i. RAC Non-Responsive j. FREQUENCY (Hr Per Day) Non-Responsive  
k. NO CIV(S) Non-Responsive l. NO MIL Non-Responsive m. NO CONTRACTOR(S) Non-Responsive n. NO LOC(S) Non-Responsive o. NO OTHER Non-Responsive

SECTION 2. IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTHS Non-Responsive  
e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

SECTION 3. SURVEY DATA

a. SURVEY DATE Non-Responsive b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>24/41 FC Avg 36 FC</u>	<u>FC</u>	<u>50-100</u>	<u>Unalgt.</u>

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH FC NO	R/A
DISPOSABLE			
W/ FACE AIR PURIFYING			
W/ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

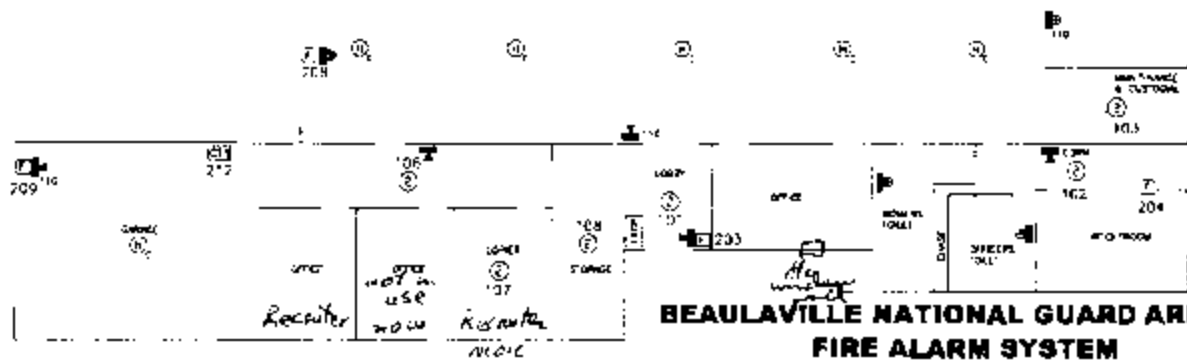
a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>PO BVD</u>	<u>Daily use of Computer for long periods of time</u>	<u>3</u>	



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# LEGEND

- FACP FIRE ALARM CONTROL PANEL
- MANUAL PULL STATION
- PHOTOELECTRIC SMOKE DETECTOR
- ADDRESSABLE HEAT DETECTOR
- CONVENTIONAL HEAT DETECTOR
- DUAL INPUT MODULE
- SINGLE INPUT MODULE
- HORN/STROBE
- STROBE



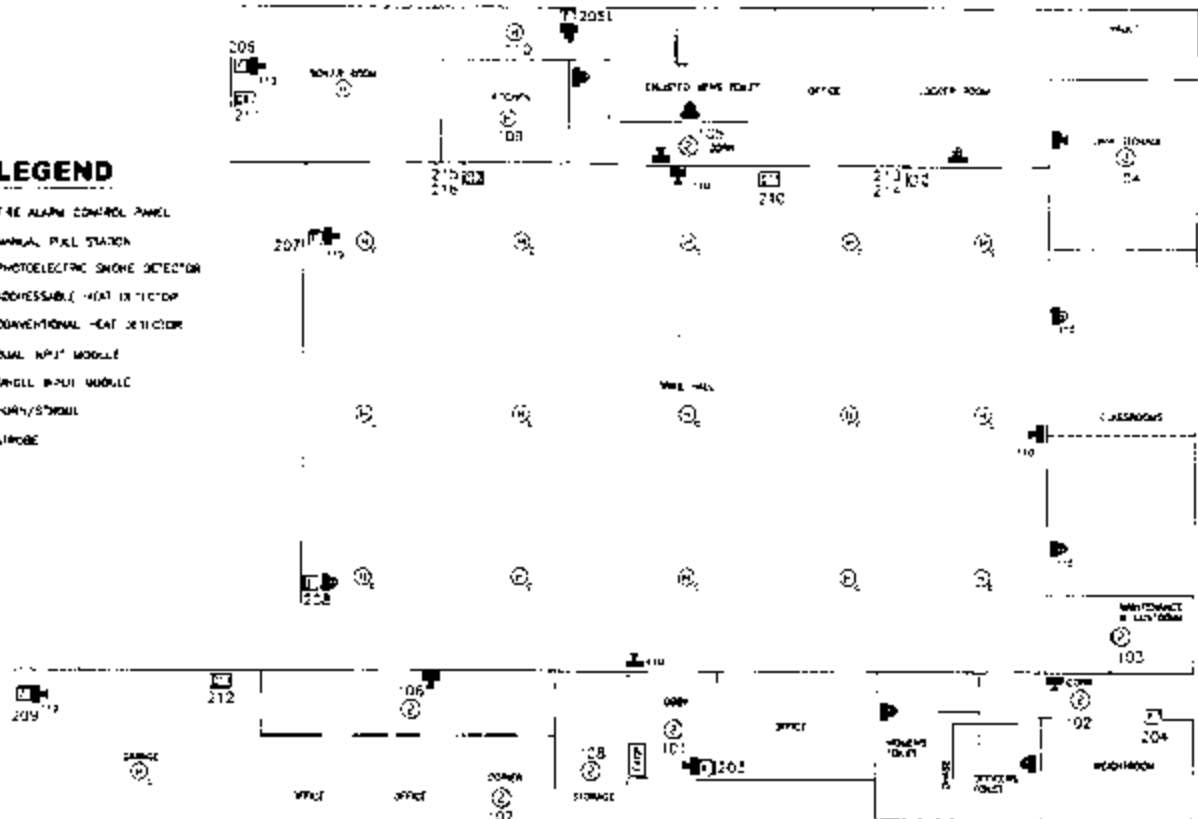
## BEAULAVILLE NATIONAL GUARD ARMORY FIRE ALARM SYSTEM

*Indirect Firing Range*

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# LEGEND

- Ⓜ FIRE ALARM CONTROL PANEL
- Ⓜ MANUAL PULL STATION
- ② PHOTOELECTRIC SMOKE DETECTOR
- Ⓜ ADDRESSABLE HEAT DETECTOR
- ① CONVENTIONAL HEAT DETECTOR
- Ⓜ DUAL INPUT MODULE
- Ⓜ SMOKE INPUT MODULE
- Ⓜ HORN/STROBE
- Ⓜ STROBE



## BEAULAVILLE NATIONAL GUARD ARMORY FIRE ALARM SYSTEM

Analytical Environmental Servs, Inc.

Date: 2/25/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: Lead Wipe  
 Project No: **Non-Responsive**  
 PO No:

Lab Order: 0302423  
 Date Received: 2/14/2003 11:30:  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0302423-001A	1	69.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-002A	2	103	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-003A	3	218	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-004A	4	66.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-005A	5	53.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-006A	6	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-007A	11	50.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-008A	12	26.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-009A	13	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-010A	21	4840	µg, Total	9.17	3.24	1/13/2003	2/19/2003
0302423-011A	22	1820	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-012A	23	1090	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-013A	24	538	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-014A	25	160	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-015A	26	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-016A	31	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-017A	32	28.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-018A	33	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-019A	34	25.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-020A	35	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-021A	36	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-022A	41	2290	µg, Total	6.08	2.15	1/14/2003	2/19/2003
0302423-023A	42	192	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-024A	43	57.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-025A	44	74.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-026A	45	21.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-027A	46	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-028A	51	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-029A	52	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-030A	53	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-031A	54	31.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-032A	55	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-033A	56	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-034A	61	528	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-035A	62	1140	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-036A	63	44.0	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-037A	64	380	µg, Total	2.83	1	1/15/2003	2/19/2003

Barlow  
 Henry



**Beulaville, NC  
Armory**







## Drill Hall



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**A/C Outlet Grill**

**A/C FILTER**







**A/C Window Unit,  
Heater ,Classroom**

**A/C Window Unit,  
Heater, NCO Office**





**IFR Bullet  
Backstop**

**IFR Floor in Front  
of Bullet Backstop**





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## IFR Sampling Areas





**Boiler Room**

**MOTOR POOL**



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 07, 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company B (-), 230<sup>th</sup> Support Battalion, ATTN: SSG [REDACTED] 901 Susan Tart Road, Dunn, North Carolina 28334-5522.

SUBJECT: Industrial Hygiene Survey of the Dunn National Guard Armory, Dunn, North Carolina.

1. References.

- a. Report submitted 21 November 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
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- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. Ms. [REDACTED] of LAE Consulting conducted the survey.

BEST AVAILABLE COPY



3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Use the report to help in correcting all deficiencies noted by the contractor.
- c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **COMMERCIAL Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

November 21, 2001

**MEMORANDUM FOR: Company B (-), 230th Support Battalion, ATTN: SSG**  
**Non-Responsive** 901 Susan Tart Road, Dunn, North Carolina 28334-5522

**SUBJECT: Industrial Hygiene Survey of Dunn National Guard Armory, Dunn, North Carolina**

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Dunn NG Armory. The facility was visually examined and the Administrative NCO was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Photographs of the facility can be found in Enclosure 2. Health Hazard Inventories can be found in Enclosure 3. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 4.

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SUBJECT: Industrial Hygiene Survey of Dunn National Guard Armory, Dunn, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Dunn National Guard Armory in Dunn, North Carolina on 18-19 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. The facility houses Company B (-), 230th Support Battalion. This is a Maintenance Support unit. The Armory has three full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000 hours. Soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The Armory is utilized for drills on the weekend. The building was constructed in the 1950s. The facility houses eleven administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

5. Findings.

a. Knowledge of the location of Material Safety Data Sheets (MSDS) and chemical inventory was unknown to personnel. Armory personnel have not been trained in Hazard Communication. The Readiness NCO and the supply NCO have attended an Environmental Compliance type course.

b. A deactivated Indoor Firing Range was converted into a large storage area. The bullet trap is of a louver type design. Bullets hit the backstop and fall between the louvers into a pit beneath the bullet trap. Access to the pit is obtained through a small door located in the Drill Hall. The range was deactivated prior to its completion. The range currently stores Calibration type equipment.

c. The Supply room houses an Arms room, TA/50/ CIF (Central Issue Facility), and the supply administrative area. The areas were visually surveyed. Compasses with a radioactive source are stored within the Supply room secured areas. Signage stating "Warning Radioactive Hazard" was not posted. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There was no evidence of weapons repair. Personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

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**SUBJECT: Industrial Hygiene Survey of Dunn National Guard Armory, Dunn, North Carolina**

d. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated that no apparent vehicle maintenance is being performed in this area.

e. Petroleum, Oil, and Lubricants (POLs) are stored in two storage building located outside the Armory. Waste oil and lubricants are stored in a building with a catchment area in the floor. Paint, hydraulic fluid and 55 gallon drums of oil are stored in the second building. The building is a typical utility type building with no catchment area. A Quonset hut maintained by Organization Maintenance Service #15 is used to store tools and POLs. "No Smoking" signs are posted. Fire extinguishers are present.

f. Nuclear, Biological and Chemical (NBC) equipment is stored in a room located of the Drill Hall. Chemical alarms having a known radioactive source are within this area. Radioactive warning signs were not posted.

g. Communication equipment repair is located in a small room off the kitchen/mess. The room was the former mess pantry. There are no windows. Ventilation is provided by opening the door. A communication specialist is not currently assigned to this unit.

#### 6. Recommendations.

a. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. All personnel employed by the Armory should have knowledge of the location of the MSDS book. A need for Hazard Communication Training for other full time National Guard personnel should be addressed with the North Carolina Occupational Safety and Health office.

b. Lead wipe sampling was not conducted since range was never activated.

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**SUBJECT: Industrial Hygiene Survey of Dunn National Guard Armory, Dunn, North Carolina**

c. Continue to ensure weapons maintenance is not performed inside the Arms room. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the name, the radioactive material in the item, and the storage locations on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the United States Property Facility office (USPFONC) in North Carolina.

d. Discourage the use of the Drill Hall as a motor vehicle maintenance bay. Vehicle maintenance should be performed outside the building where ventilation is adequate and there is no risk of Carbon Monoxide fumes entering the armories ventilation system.

e. If funding is available, considering purchasing storage buildings that is suitable for storage of POLs. The building at a minimum should have a catchment area in the floor and rated for chemical and flammable storage. OMS #15 should be contacted to assist in an inventory of the chemicals used by their facility. Include the inventory with the Armories Master inventory and ensure MSDS are posted in the Armory's book. Recommend the purchase of spill control equipment such as catchment basins and absorbent material. Place 55 gallon drums of oil in secondary containment, which has a catchment area that holds one and half times the capacity of the fluid of the drum. Secondary containment should be used in areas of operation where there is a probability for a spill. Dispose of all excess hazardous chemicals and equipment through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

f. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the name, the radioactive material in the item, and the storage locations on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the United States Property Facility office (USPFONC) in North Carolina.

g. Soldering is an operation that is usually performed in a Communication repair shop/area. If this facility acquires a Communications Specialist and considers performing soldering operations, contact the North Carolina Occupational Health office for technical assistance in ventilation requirements.

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SUBJECT: Industrial Hygiene Survey of Dunn National Guard Armory, Dunn, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

**Non-Responsive**

LAE Consulting

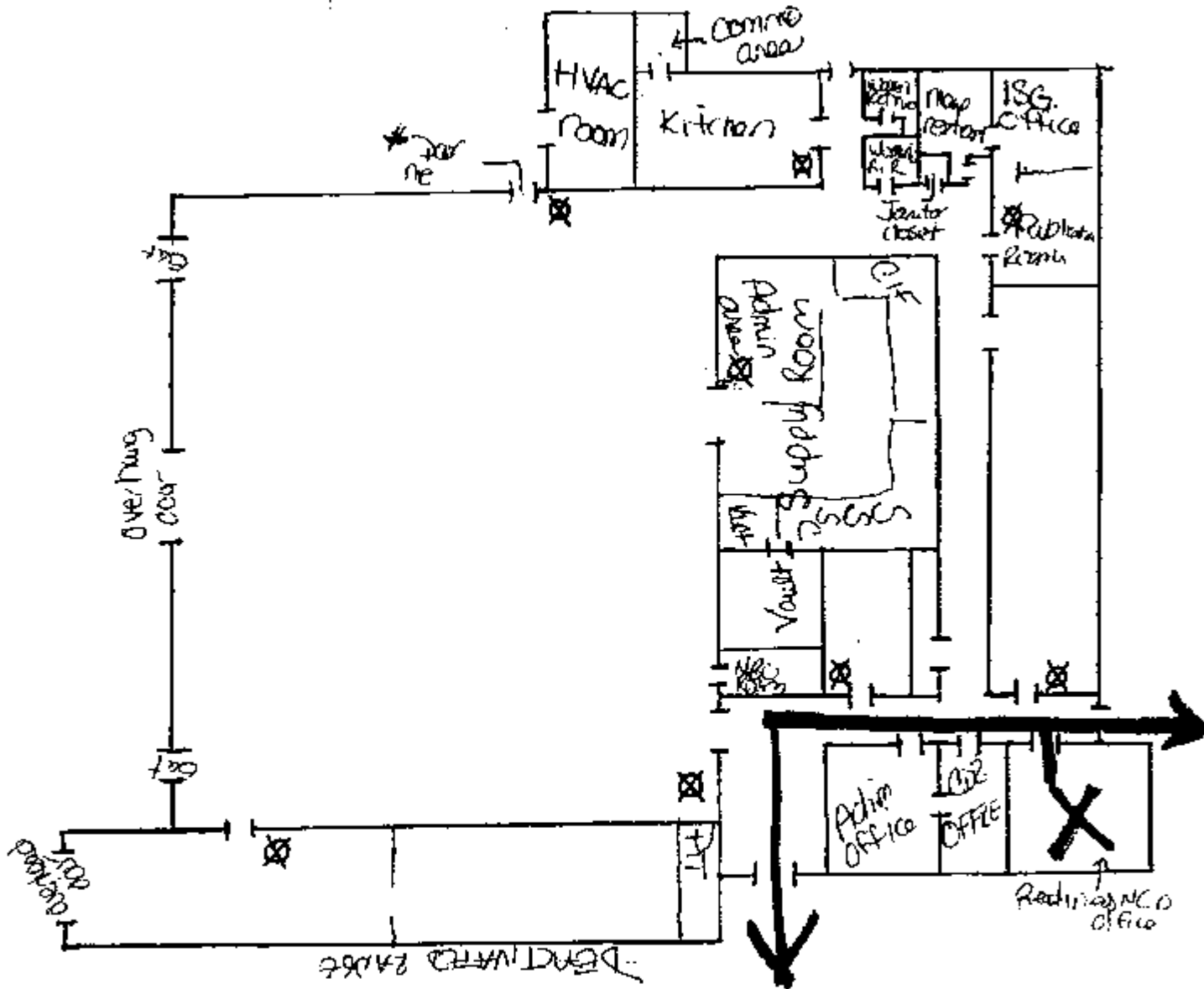
CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

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1218 Scattered Pines Court, Severn, Maryland 21144  
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TRAINING OFFICE



FIRE EXTINGUISHER ■

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B Co (-) 230th Support Battalion  
Dunn National Guard Armory, North Carolina



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Views of both POL Storage Units



View inside of POL Storage Unit

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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION Dunn N6. Army	BLDG/RM NO. 910 Susan Tent Rd
LOCATION/CODE Administrative	OPERATION/CODE Administrative	
SURVEY DATE 18 Oct 01 - 19 Oct 01	EVALUATOR (Initials) LAE	
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR SFC Non-Responsive
TELEPHONE/DSN NO. Non-Responsive	UNIT/ORGANIZATION BCD(-) 230 SPT BN	RAC 4
NO. CIV(S)	NO. MIL 4	NO. CONTRACTOR(S)
		NO. LOC(S)
		NO. OTHER

## SECTION 2. FACILITY DATA

LAB HOODS Ø	VAPOR DEGREASERS Ø	SPRAY BOOTHS Ø
MAINTENANCE BAYS Ø	OPEN SURFACE TANKS Ø	VENTILATION UNITS Ø

## SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIRLINE			/
COLD SURFACES	/	ABRASIVE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNES	/		/

## SECTION 4. HAZARD INVENTORY DATA

CAS CODE	HAZARD DESCRIPTION	PAC	EPC
COLUBEDIL	Petroleum, Oil + Lubricants		

## SECTION 5. PERSONNEL DATA

LAST NAME	FIRST NAME	MI	SEX	SSN	CATEGORY
Non-Responsive	Non-Responsive				
SFC,	63H		M		A6R
SFC,	63H	E	M	Non-Responsive	A6R
2-5	924	L	F		A6R
E-6	92A		M		A6R
E-5	63B	G	M		A6R

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

## Safety

### GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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#### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

#### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. DODI 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGA (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).

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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, 725<sup>th</sup> QM (POL),  
ATTN: **Non-Responsive** 739 Southside Road, Edenton, NC 27932.

SUBJECT: Industrial Hygiene Survey of the Edenton National Guard Armory, Edenton, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** DR **Non-Responsive**

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

April 4, 2003

**Non-Responsive**

NC Army National Guard Armory  
739 Soundside Rd.  
Edenton, NC 27932

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**EDENTON ARMORY**

**EDENTON, NC**

**DATE:**

**FEBRUARY 26,2003**

**PREPARED BY**

**Non-Responsive**  
**585 GINGER CAKE RD**  
**FAYETTEVILLE, GA 30214**  
**Non-Responsive**



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### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

**Attachment 1 HHIM Forms**

**Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range**

**Attachment 3 Laboratory Reports: Supply air grills offices**

**Attachment 4 Photographs of the Facility**

**Attachment 5 Schematic Drawing of Facility**

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Edenton Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Edenton Armory.

The building was finished around 1982 or 83. The facility houses the 725<sup>th</sup> QM (POL). The armory is used by the troops of the 725<sup>th</sup> QM (POL) for their monthly weekend drills.

The 725<sup>th</sup> QM (POL) with 62 troops had 3 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill Hall, classrooms, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. The kitchen was not been used to cook for the troops at the time of the survey. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurements were below IES guidelines at the Readiness NCO office, Supply Room office (18 FC at the computer with 3 light bulbs out), and the Drill Hall (with 8 light fixtures with two bulbs out each). The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Personnel reported no health problems associated with the job at this time.

#### **Motor Pool**

The motor pool includes 5T trucks, trailers and forklifts. The armory has a small fenced area and not all the vehicles can be placed there. The majority of the vehicles are located in a non-fenced area (See pictures). A larger fenced area is supposed to be built in the near future. PMC are performed at the armory. When major repairs are needed the vehicles are taken to the OMS #19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation, training and classes on weekend drills. The Drill Hall is used to clean weapons about twice a year. Air exhaust ventilation fans, located at the roof, are turned on. At the time of the survey one of the air exhaust ventilation fans was not working. A work order had been placed for its repair. Troops are advised to wash hands after weapons cleaning. The Drill Hall is rented occasionally for wedding receptions, fundraisers and craft shows. The kitchen is not used for cooking on weekend drills at the time of the survey. They use catering services.

#### **Boiler Room**

The boiler is a metal one that uses propane gas. Personnel stated that the boiler works well. The pipes wrappings appear intact with no fractures. No water leakage observed at the time of the survey.

### Deactivated Indoor Firing Range

A deactivated Indoor Firing Range (IFR) has been converted into a storage area. There are metal shelves metal cabinets, equipment, and chairs. The floor is concrete. Original acoustic material is present on the walls. Personnel reported that the IFR was "sanitized" around 1997. Six swipe samples were taken from the IFR. Two of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

Sample Number	Sample Location	Results
91	Bullet backstop	16500ug
92	Floor in front of bullet backstop	254ug
93	Item stored in IFR	191ug
94	Item stored in IFR	54ug
95	Wall next to entrance/exit door	28ug
96	Blank	BLR

### Weapons Vault

The Edenton Armory has a weapon storage vault located in the Supply Room. The weapons list includes only M-16s 9mm pistols, m-249 and 50 Caliber machine guns. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about twice a year in the Drill Hall with the air exhaust ventilators turned on in the Drill Hall. The dehumidifier in the weapons vault was not working the day of the survey. It was broken. A work order for repair or replacement was sent about a month before the day of the survey.

### A/C System

Central A/C unit is used to cool the administration offices and the classrooms. The Supply Room has a separate A/C unit. The filter was changed the day of the survey. Seven swipe samples were collected from the supply air grills in the offices occupied by personnel of the armory, the classrooms and the filter. All samples were below the clearance level of 200 ug/ft<sup>2</sup>.

**Table 2**

Sample Number	Sample Location	Results
81	CO Office	BRL
82	Training NCO Office	BRL
83	Readiness NCO Office	33ug
84	Copying Room	BLR
85	A/C filter Supply side	BLR
86	A/C filter Fan side	BLR
87	Blank	BLR

### Material Safety Data Sheets

The MSDS Book master copy is located in the Supply Room Office. A private contractor recently organized the MSDS Book. The book contains MSDS for hazardous materials and household goods. There is a Hazardous Materials Inventory List for the oil shed and for the cleaning closet. Non-Responsive attended a Facility Environmental Compliance course in 2002.

### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

**Table 3**

<b>Location</b>	<b>Light Reading (footcandles)</b>	<b>IES Recommendation (footcandles)</b>
ADO Readiness NCO Office	40-59 (Avg. 48)	50-100
ADO Training NCO Office	70-93 (Avg. 84)	50-100
ADO Supply Room (Office)	18-40 (Avg. 32)	50-100
ADO Supply Room (Storage)	4-40 (Avg. 21)	20
Adm. Office, Copying Room	43-73 (Avg. 52)	50-100
Classrooms	41-73 (Avg. 56)	50-100
CO Office	55-72 (Avg. 62)	50-100
Drill Hall	14-27 (Avg. 23)	30

Light measurements were below IES guidelines at the Readiness NCO office, Supply Room office (18 FC at the computer with 3 light bulbs out), and the Drill Hall (with 8 light fixtures with two bulbs out each). The other areas tested were within IES minimum standards. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard and to replace burned out bulbs. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.

- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out light fixtures in the Supply Room and the Drill Hall.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- The A/C filter should be replaced in a timely manner according to manufacturer recommendation.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A request should be re-submitted to the appropriate state office to obtain a new dehumidifier to replace the non-working one in the Weapons Vault and the repair of the air exhaust ventilation fan in the Drill Hall if they have not been repaired or replaced yet.
- A request should be submitted to the appropriate state office for the installation of a larger fence so all the vehicles of the motor pool can be kept in the fenced area if it has not been done yet.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.



# SECTION 1. DEMOGRAPHIC DATA

BEST AVAILABLE COPY

a. ARLOC 37000 b. INSTALLATION Edenton NC Airway c. BLOG/RM NUMBER Readman CO Office  
d. LOCATION/COCE Readman NLO, Rd 101, personal computer work 3 hrs/day e. OPERATION CODE computer phone  
f. MACOM/COCE NG g. SUBMACOM/COCE 1 h. SUPERVISOR 1  
i. TELEPHONE/AUTOVON NUMBER 1 j. RAC 1 k. FREQUENCY (Hr/Day) 1  
l. NO CIV(S) 1 m. NO MIL 1 n. NO CONTRACTOR(S) 1 o. NO LOC(S) 1 p. NO OTHER 1

# SECTION 2. IH STAFFING DATA

a. LAB HOODS 1 b. VAPOR DEGREASERS 1 c. MAINTENANCE BAYS 1 d. SPRAY BOOTH(S) 1  
e. OPEN SURFACE TANKS 1 f. VENTILATION UNITS 1

# SECTION 3. SURVEY DATA

a. SURVEY DATE 2-26-83 b. EVALUATOR (INITIALS) AKH

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting	40-59-Arg 48	RC	SD-100	Exceed

## h. PERSONAL PROTECTIVE EQUIPMENT (N=NEEDED, A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	#
DISPOSABLE			
W FACE AIR PURIFYING			
U FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	#
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

# SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC OR EPC	d. MEDICAL SURVEILLANCE RECOMMENDED
PO VDT	Only use of computer for long periods of time	3	YES/NO



## HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

\*SEE PRIVACY ACT STATEMENT ON REVERSE.  
 (For use of this form, see FHIM User's Instructions.)

## SECTION 1.

## DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Edenton NC Armory c. BLDG/RM NUMBER Training NCO  
 d. LOCATION/CODE RA e. OPERATION/CODE ADG f. DESCRIPTION Training NCO, Training potential, Personnel, Computer work 4-5 hrs/day  
answering phones.  
 g. MACOM/CODE NG h. FORM CODE 1 i. SUPERVISOR Non-Responsive  
 j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. RAC Non-Responsive l. FREQUENCY (Hrs Per Day) Non-Responsive  
 m. NO CIV(S) Non-Responsive n. NO MIL Non-Responsive o. NO CONTRACTOR(S) Non-Responsive p. NO LOC(S) Non-Responsive q. NO OTHER Non-Responsive

## SECTION 2.

## IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOT-S Non-Responsive  
 e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

## SECTION 3.

## SURVEY DATA

a. SURVEY DATE 2-26-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>70-93; by 84</u>	<u>FC</u>	<u>50-100</u>	<u>Adgt.</u>

## h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR MANUFACTURER NIOSH TC NO R/A  
 DISPOSABLE \_\_\_\_\_  
 4/ FACE AIR PURIFYING \_\_\_\_\_  
 6/ FACE AIR PURIFYING \_\_\_\_\_  
 FULL FACE AIR PURIFYING \_\_\_\_\_  
 POWERED AIR PURIFYING \_\_\_\_\_  
 AIRLINE \_\_\_\_\_  
 SELF-CONTAINED \_\_\_\_\_  
 ABRASIVE BLASTING HOOD \_\_\_\_\_

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

## SECTION 4.

## HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>Po VDT</u>	<u>Daily use of computer for long periods of time</u>	<u>7</u>	<u> </u>



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## SECTION 1.

## DEMOGRAPHIC DATA

a. ARLOC 37008 b. INSTALLATION Edenton NC Armory c. BLDG/RM NUMBER Supply Room  
 d. LOCATION/CODE SA e. OPERATION/CODE AD-54H f. DESCRIPTION Supply, Drive trucks who got fuel strings. Pick up equipment.  
 g. MACOM/CODE NS h. CODE 1 i. SUPERVISOR Non-Responsive  
 j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. RAC Non-Responsive l. FREQUENCY (Hrs Per Day) Non-Responsive  
 m. NO CIV(S) Non-Responsive n. NO MIL Non-Responsive o. NO CONTRACTOR(S) Non-Responsive p. NO LOC(S) Non-Responsive q. NO OTHER Non-Responsive

## SECTION 2.

## IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOT-S Non-Responsive  
 e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

## SECTION 3.

## SURVEY DATA

a. SURVEY DATE 2-26-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting Supply	4-40-1724	FC	20	105T
Office - Storage	18-40-1732	FC	50-108	105T
Storage Office				

## h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

## 1. RESPIRATOR

## MANUFACTURER

## NIOSH TC NO

## R/A

DISPOSABLE

W/ FACE AIR PURIFYING

W/ FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

## SECTION 4.

## HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
PO VDT	Daily use of computer for long periods of time	3	
PO LIFTING	Heavy lifting	3	
PO FOOT HAZ	Falling objects	3	





## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

<b>CLIENT:</b>	Non-Responsive	<b>Lab Order:</b>	0304197
<b>Project:</b>	Edenton, NC Armory	<b>Date Received:</b>	4/7/2003 2:40:00
<b>Project No:</b>		<b>Matrix:</b>	Wipe
<b>PO No:</b>		<b>Analyst:</b>	Non-Responsive

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0304197-001A	81	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-002A	82	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-003A	83	33.0	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-004A	84	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-005A	85	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-006A	86	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-007A	87	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-008A	91	16500	µg, Total	43.0	15.18	2/26/2003	4/8/2003
0304197-009A	92	254	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-010A	93	191	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-011A	94	54.0	µg, Total	2.83	1	2/26/2003	4/8/2003
0304197-012A	95	28.0	µg, Total	2.83	1	2/26/2003	4/9/2003
0304197-013A	96	BRL	µg, Total	2.83	1	2/26/2003	4/9/2003

## Qualifiers:

MDL - Method Detection Limit

DF - Dilution Factor

ND - Not Detected at the Reporting Limit



Edenton, NC  
Armory







## Drill Hall



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**IFR, Front View**

**IFR, Rear View**



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## IFR, Sampling Areas





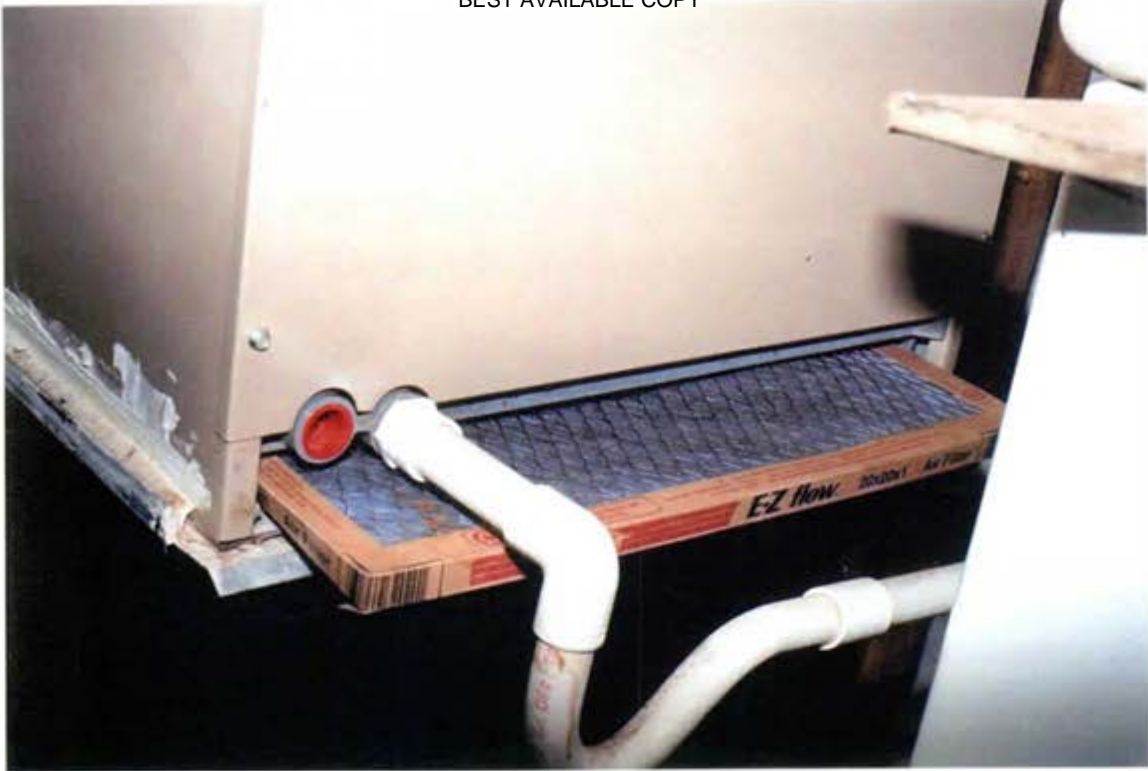
BEST AVAILABLE COPY



**A/C Outlet Grill  
Classroom**

**A/C outlet Grill  
Office**





**A/C-Heating Unit  
Filter**

**Heat Radiator**





**MSDS Book**

**Motor Pool  
Fenced**







**Motor Pool Not  
Fenced**

**Motor Pool Not  
Fenced**

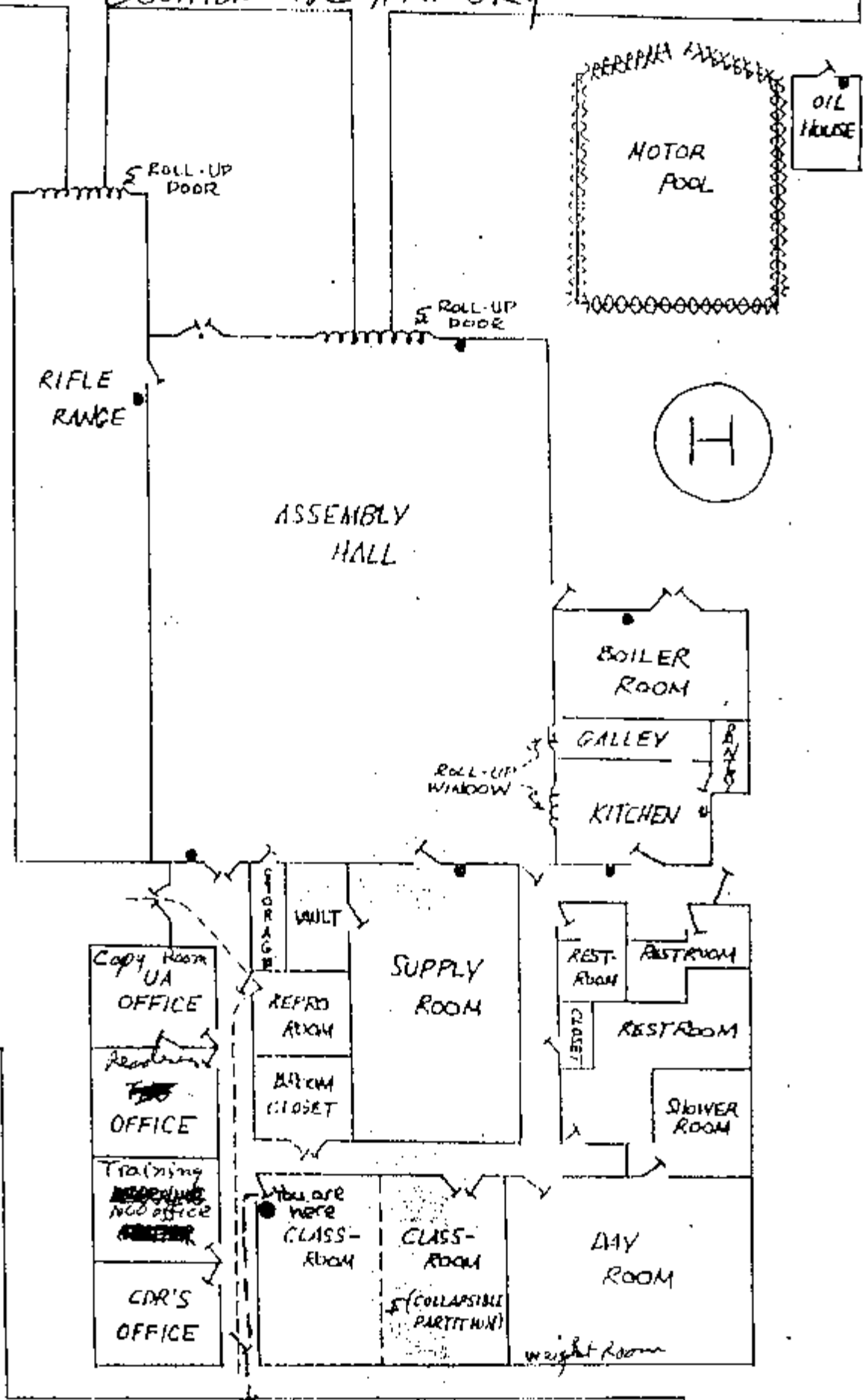


Edenston NE ARMORY

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● FIRE EXTINGUISHER LOCATION  
- - - EVACUATION ROUTE

SR# 1114



SR# 1133



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Detachment 1, 725<sup>th</sup>  
QM (POL), ATTN: **Non-Responsive** 600 Westover Street, Elizabeth City, NC  
27909.

SUBJECT: Industrial Hygiene Survey of the Elizabeth City National Guard Armory,  
Elizabeth City, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **Non-Responsive** COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

April 4, 2003

**Non-Responsive**

**NC Army National Guard Armory  
600 Westover St.  
Elizabeth City, NC 27909**

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**ELIZABETH CITY ARMORY**

**ELIZABETH CITY, NC**

**DATE:**

**FEBRARY 26,2003**

**PREPARED BY**

**Non-Responsive**  
**583 GINGER CAKE RD**  
**FAYETTEVILLE, GA 30214**  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range, Drill Hall

Attachment 3 Photographs of Facility

Attachment 4 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Elizabeth City Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Elizabeth City Armory.

The building was finished approximately in the early 1970s. The facility houses the Detachment 1 725<sup>th</sup> QM (POL). The armory is used by the troops of the Detachment 1 725<sup>th</sup> QM (POL) for their monthly weekend drills.

The Detachment 1 725<sup>th</sup> QM (POL) with 50 troops had 1 full time AGR personnel at the time of the survey. The AGR employee is assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. The coast guard uses a small section of the building. This section was closed the day of the survey. A schematic drawing of the facility can be found in Attachment 4.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Readiness NCO Office (two light fixtures out), Recruiter Office (one light fixture out) and at the Drill Hall (six bulbs out). The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, about six to seven hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool consists of 5T trucks, HUMMWVs and front loaders. Technicians come occasionally to repair vehicles at the armory. Other repair jobs are performed at the OMS 19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation, classes and training during weekend drills. No cooking is done in the armory. They go out to eat. The Drill Hall is used to clean weapons about two times a year. Tables are set up in the Drill Hall. It was done a month before and the Bay (roll-up) door were not kept open when the weapons were cleaned. There are no exhaust ventilation fans in the Drill Hall. The Drill Hall is rented for parties, weddings, wrestling matches and weight lifting contests.

#### **Boiler Room**

The boiler is a metal one that uses propane gas. Personnel stated that it heats well. Survey of the Boiler Room shows the pipe wrapping are not broken. No water leakage was observed at the time of the survey.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. It has been divided into several partitions with wood frames. There are chairs, metal and wood cabinets and other items. Personnel reported that it has not been

used for at least 20 years. Not known when it was "sanitized". Six swipe samples were taken from the IFR. Four of the six samples were above the clearance level of 200ug/f12. See table 1 for results.

**Table 1**

Sample Number	Sample Location	Results
101	Bullet backstop	17000ug
102	Floor in front of bullet backstop	7040ug
103	Item 1, stored in IFR	108ug
104	Wall next to exit door	254ug
105	Wall next to exit door	1800
106	Blank	BLR

### **Drill Hall Laboratory Sampling**

**Table 2**

Sample Number	Sample Location	Results
111	Top of table	27ug
112	Top of water fountain	BRL
113	Top of shelf for tel.	79ug

### **Weapons Vaults**

The Elizabeth City armory has a weapon storage vault located in the Supply Room. The weapons list includes only M-16s. Personnel were reminded that the dehumidifier should be turn on at all times. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall.



### A/C Heating System

Individual window A/C units cool the administrative offices. The window A/C units work well.

### Material Safety Data Sheets

A private contractor recently updated the MSDS Book. There is a Hazardous Materials Inventory List for household goods located in the utility room and one for chemicals located in the flammables cabinet (locker) at the Supply Room. No one, as of the time of the survey, had attended Hazardous Materials Training.

### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

**Table 3**

Location	Light Reading (footcandles)	IES Recommendation (footcandles)
ADO Readiness NCO Office	24-81 (Avg. 45)	50-100
ADO Supply Room	8-36 (Avg. 20)	20
Recruiter Office	19-61 (Avg. 45)	50-100
Classroom	45-64 (Avg. 52)	50-100
CO Office	48-69 (Avg. 59)	50-100
Sgt. Office	60-67 (Avg. 62)	50-100
Drill Hall	15-28 (Avg. 23)	30

Light measurements were below IES guidelines at the Readiness NCO Office (two light fixtures out), Recruiter Office (one light fixture out) and at the Drill Hall (six bulbs out). The other areas tested were within IES minimum standards. Consideration should be given to replace burned out bulbs in the Drill Hall, the light fixtures burned out at the Readiness NCO and Recruiter offices and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

### 4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## **RECOMMENDATIONS**

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out bulbs in the Drill Hall, the burned out light fixtures in the Readiness NCO Office and the Recruiter Office be replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

**SECTION 1. DEMOGRAPHIC DATA**

a. ARLOC 37000 b. INSTALLATION Elizabeth City, NC Armory c. BLDG/RM NUMBER Readers NCO Office  
d. LOCATION/CODE AA e. OPERATION/CODE ADD f. DESCRIPTION Readers NCO, Admin unit, payroll, some supply, Computer unit 6-7 hrs/day  
g. MACOM/CODE NG h. SUPERVISOR \_\_\_\_\_  
i. TELEPHONE/AUTOVON NUMBER \_\_\_\_\_ j. RAC \_\_\_\_\_ k. FREQUENCY (Hrs Per Day) \_\_\_\_\_  
m. NO CIV(S) \_\_\_\_\_ n. NO MIL \_\_\_\_\_ o. NO CONTRACTOR(S) \_\_\_\_\_ p. NO LOC(S) \_\_\_\_\_ q. NO OTH'S \_\_\_\_\_

**SECTION 2. IH STAFFING DATA**

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOTHES \_\_\_\_\_  
e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

**SECTION 3. SURVEY DATA**

a. SURVEY DATE 2-26-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>lighting</u>	<u>24-hr, avg 4.5</u>	<u>FL</u>	<u>50-100</u>	<u>Insight</u>

**h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)**

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE	_____	_____	_____
4- FACE AIR PURIFYING	_____	_____	_____
4- FACE AIR PURIFYING	_____	_____	_____
FULL FACE AIR PURIFYING	_____	_____	_____
POWERED AIR PURIFYING	_____	_____	_____
AIRLINE	_____	_____	_____
SELF-CONTAINED	_____	_____	_____
ABRASIVE BLASTING HOOD	_____	_____	_____

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

**SECTION 4. HAZARD INVENTORY DATA**

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC OF EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES OR NO)
<u>PO VDT</u>	<u>daily use of computer for long periods of time</u>	<u>3</u>	
<u>PO LIFTING</u>	<u>heavy lifting</u>	<u>3</u>	
<u>PO FOOT HAZ</u>	<u>Falling objects</u>	<u>3</u>	



## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: Elizabeth City, NC Armory  
 Project No:  
 PO No:

Lab Order: 0304196  
 Date Received: 4/7/2003 2:40:00  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0304196-001A	101	17000	µg, Total	44.2	15.61	2/26/2003	4/8/2003
0304196-002A	102	7040	µg, Total	12.8	4.51	2/26/2003	4/8/2003
0304196-003A	103	108	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-004A	104	254	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-005A	105	1800	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-006A	106	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-007A	111	27.0	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-008A	112	BRL	µg, Total	2.83	1	2/26/2003	4/8/2003
0304196-009A	113	79.0	µg, Total	2.83	1	2/26/2003	4/8/2003

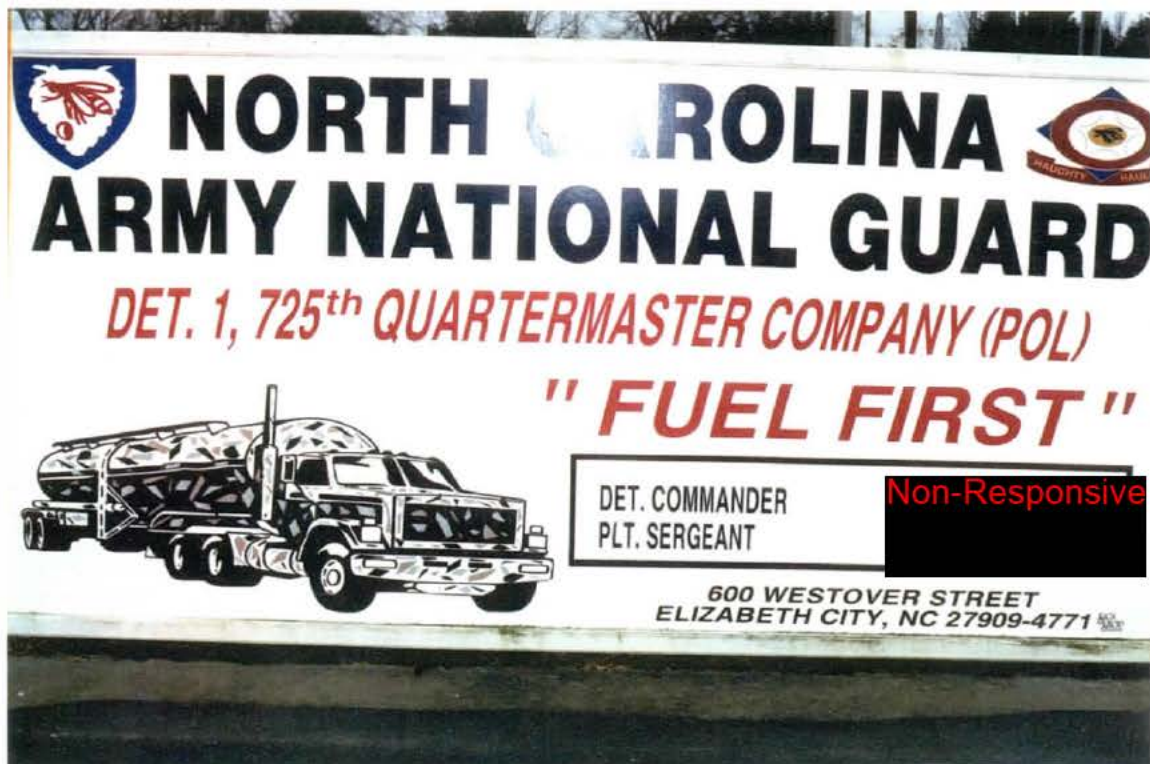
Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor





Elizabeth City, NC  
Armory





## Drill Hall







**IFR, Front View  
Bullet Backstop**





**IFR, Rear View**

**A/C Window Unit  
Office**





## IFR, Sampling Areas





BEST AVAILABLE COPY



**Boiler**

**Heat Radiator**





**Flammables Locker**

**Motor Pool**





2.  $\text{Ca}^{2+}$  is  $1.1 \times 10^{-3} \text{ M}$  (911)

338-3913

**SECRET**

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, 196<sup>th</sup> Cavalry,  
ATTN: **Non-Responsive** 1001 Swanzy Street, Elizabethtown, NC 28337.

SUBJECT: Industrial Hygiene Survey of the Elizabethtown National Guard Armory,  
Elizabethtown, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the lead levels in the deactivated Indoor Firing Range and the Drill Hall with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO (**Non-Responsive**) Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.



**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

March 2, 2003

**Non-Responsive**

**NC Army National Guard Armory  
1001 Swanzy St.  
Elizabethtown, NC 28337**

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**ELIZABETHTOWN ARMORY**

**ELIZABETHTOWN, NC**

**DATE:**

**JANUARY 15, 2003**

**PREPARED BY**

**Non-Responsive**  
583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Asbestos, Bulk Sample Analysis

Attachment 4 Photographs of Facility

Attachment 5 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Elizabethtown Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Elizabethtown Armory.

The building was finished in 1963. The roof was replaced about five years ago. The facility houses the 196<sup>th</sup> Calvary. The armory is used by the troops of the 196<sup>th</sup> Calvary for their monthly weekend drills.

The 196<sup>th</sup> Calvary with 98 troops has 4 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Supply Room office (with a light fixture out), the Readiness NCO Office, the Training NCO Office, the Administration Office (with a light fixture out) and the CO Office. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes cargo HEMMTT, fuel HEMMTT, 2.5T trucks, ST trucks, and HMMWV. A smaller building in the back of the armory is used to store a tank. It has a training simulator used to train the troops. PMCS performed at the armory. Other repair jobs are performed at the OMS 11 in Fayetteville.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and training during weekend drills. The Drill Hall is used to clean weapons about four times a year. Bay (roll-up) door is kept open when the weapons are cleaned. Gloves and portable fans are used when weapons are cleaned. There are no exhaust ventilation fans in the Drill Hall. The Drill Hall is rented for parties, weddings receptions and dances. Renters bring their own food.

#### **Boiler Room**

Personnel reported that the facility has the original boiler. They also stated that it heats well, but sometimes too warm. It may be warmer in one area than others. Survey of the Boiler Room shows the wrapping below the valves even though intact is beginning to peel a little.

### Deactivated Indoor Firing Range

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. It has not been used as a firing range in over 25 years. It was "sanitized" about 6 years ago according to personnel. There were many metal shelves, boxes, NG gear and metal cabinets. Original acoustic material is present on the walls. The floor is concrete. Six wipe samples were taken from the IFR. Three of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

Sample Number	Sample Location	Results
61	Bullet backstop	528ug
62	Floor in front of backstop	1140ug
63	Item 1, floor midway up	44ug
64	Item 2 stored metal rail	380ug
65	Wall floor next to exit door	155ug
66	Blank	BLR

### Asbestos Sampling

A sample for asbestos was taken from a broken ceiling in the Classroom. The result of the analysis was negative for asbestos. See laboratory report in attachment 3.

### Weapons Vaults

The Elizabethtown Armory has a weapon storage vault located in the Supply Room. The weapons list includes M-16s, M-4, 50 Caliber, M-240 and MK 19. The dehumidifier is turned on at all times. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall, about four times a year.

### A/C Heating System

Individual window A/C units cool the administrative offices and classroom. The armory has only one Central A/C unit. This is a newer unit that is used to cool Supply Room.

### **Material Safety Data Sheets**

The MSDS Book master copy is located at the Supply Room. Personnel reported that the book is updated as new products come in. There is no Flammables Cabinet for Hazardous Materials. Personnel state that a request to obtain a Flammables Cabinet was done a while back but so far they have not received one. There is a maintenance shed behind the building used to store tools with some cabinets. Oil and grease is also stored on the floor. Flammable materials such as oil and grease are also stored unlocked in the back of a trailer in the Motor Pool (See pictures). There is no Hazardous Materials Inventory List. The Supply Sgt. Went to Hazardous Materials Training in 2000. Two more personnel will be going in the next three months.

### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 2

**Table 2**

<b>Location</b>	<b>Light Reading (footcandles)</b>	<b>IES Recommendation (footcandles)</b>
ADO Readiness NCO Office	40-48 (Avg. 45)	50-100
ADO Training NCO Office	40-43 (Avg. 41)	50-100
ADO Recruiting Office	40-64 (Avg. 52)	50-100
ADO Administration Office	40-56 (Avg. 46)	50-100
CO Office	31-37 (Avg. 34)	50-100
1 <sup>st</sup> Sgt. Office	57-65 (Avg. 61)	50-100
Classroom	47-69 (Avg. 58)	50-100
ADO Supply Room Office	38-63 (Avg. 47)	50-100
ADO Supply Room (Storage)	21-39 (Avg. 29)	20
Drill Hall	48-320 (Avg. 105)	30



Light measurements were below IES guidelines at the Supply Room office (with a light fixture out), the Readiness NCO Office, the Training NCO Office, the Administration Office (with a light fixture out) and the CO Office. The other areas tested were within IES minimum standards. Consideration should be given to replace burned out light fixtures and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out light fixtures are replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.
- A new request should be re-submitted to the appropriate state office to obtain a Flammables Cabinet as soon as (if the armory has not received one yet) possible so hazardous material can be kept locked at one place and not in the back of an unlocked trailer.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Elizabeth town NC Armory c. BLDG/RM NUMBER Re Dress 2/C 6  
d. LOCATION/CODE Overseas/overseas, Support IOT vehicle, Computer work 4 hrs/day e. OPERATION/CODE  
f. DESCRIPTION  
g. MACOM/CODE NC h. SUPERVISOR  
i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. RAC  
k. FREQUENCY (Hrs Per Day)  
l. NO CIV(S) m. NO MIL n. NO CONTRACTOR(S) o. NO LOC(S) p. NO OTHER

SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTS  
e. OPEN SURFACE TANKS f. VENTILATION UNITS

SECTION 3. SURVEY DATA

a. SURVEY DATE 1-15-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>40-48; Aug 45</u>	<u>FC</u>	<u>50-100</u>	<u>Inadeq</u>

h. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	2. A
DISPOSABLE			
FACE AIR PURIFYING			
FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC OF EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES OR NO)
<u>PO VDT</u>	<u>Daily use of computer for long periods of time</u>	<u>3</u>	

## BEST AVAILABLE COPY

PERSONNEL DATA

d. CATEGORY

**COMMENTS** (Add blank sheet of paper if necessary)

- COMMENTS** (Add blank sheet of paper if necessary)
- ① Readiness NCO
  - ② Computer work - 4 hrs/day
  - ③ No health problems related to job
  - ④ Should take breaks when working on computers for long periods of time
  - ⑤ Chair use for computer work not ergonomic - uncomfortable

**PRIVACY ACT STATEMENT**

Title 5 U.S. Code, Section 301; Executive Order 8397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace in operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

*Signature*

BEST AVAILABLE COPY

**SECTION 1. DEMOGRAPHIC DATA**

a. ARLOC 37000 b. INSTALLATION Elizabethtown NC Army BLDG/RM NUMBER Training NCO Office  
 c. LOCATION/CODE AA d. OPERATION/CODE ADDS e. DESCRIPTION Reports, Training NCO patrol training schedule, weapons qualifications  
Computer work 4-7 hrs / day.  
 f. MACOM/CODE NG g. SUBMACOM/CODE 1 h. SUPERVISOR \_\_\_\_\_  
 i. TELEPHONE/AUTOVON NUMBER \_\_\_\_\_ j. RAC \_\_\_\_\_ k. FREQUENCY (Hrs Per Day) \_\_\_\_\_  
 l. NO CIV(S) \_\_\_\_\_ m. NO MIL \_\_\_\_\_ n. NO CONTRACTOR(S) \_\_\_\_\_ o. NO LOC(S) \_\_\_\_\_ p. NO OTHER \_\_\_\_\_

**SECTION 2. IH STAFFING DATA**

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOTH \_\_\_\_\_  
 e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

**SECTION 3. SURVEY DATA**

a. SURVEY DATE 1-15-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>40-43, Aug 41</u>	<u>FC</u>	<u>50-100</u>	<u>Insufficient</u>

**h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)**

i. RESPIRATOR	j. MANUFACTURER	k. NIOSH TC NO	l. R/A
DISPOSABLE			
FACE AIR PURIFYING			
FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
HEATED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

**SECTION 4. HAZARD INVENTORY DATA**

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>POVT</u>	<u>Daily use Computers for long periods of time</u>	<u>3</u>	





# SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37800 b. INSTALLATION F/1260th Town NC Armory BLDG/RM NUMBER Adm. Clerk Office  
c. LOCATION/CODE AA d. OPERATION/CODE ADD e. DESCRIPTION  
f. LOCATION/CODE Adm work, school bus  
g. MACOM/CODE NC h. SUPERVISOR  
i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. FREQUENCY (Hrs Per Day)  
k. NO CIV(S) l. NO MIL m. NO CONTRACTOR(S) n. NO LOC(S) o. NO OTHER

# SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTHS  
e. OPEN SURFACE TANKS f. VENTILATION UNITS

# SECTION 3. SURVEY DATA

a. SURVEY DATE 1-15-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>40-56, Aug 46</u>	<u>FC</u>	<u>50-100</u>	<u>Ready F</u>

## n. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR MANUFACTURER NIOSH TC NO  
DISPOSABLE  
FACE AIR PURIFYING  
FACE AIR PURIFYING  
FULL FACE AIR PURIFYING  
BREATHED AIR PURIFYING  
AIRLINE  
SELF-CONTAINED  
ABRASIVE BLASTING HOOD

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

# SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC OR EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES OR NO)
<u>POUST</u>	<u>Daily use of computers for long periods of time</u>	<u>3</u>	





## SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Elizabeth Town NC Army c. BLDG/RM NUMBER Supply Room  
d. LOCATION/CODE SA e. OPERATION/CODE ADG f. DESCRIPTION Key Custodian, Hazard Rep. Computer work about 2 hrs/day  
g. MACOM/CODE NC h. SUBMACOM/CODE 1 i. SUPERVISOR Non-Responsive  
j. TELEPHONE/AUTOVON NUMBER 910 k. PAC 1 l. FREQUENCY (Hz Per Day)  
m. NO CIV(S) n. NO MIL o. NO CONTRACTOR(S) p. NO LOC(S) q. NO OTHER

## SECTION 2. IH STAFFING DATA

a. LAB HOODS b. VAPOR DEGREASERS c. MAINTENANCE BAYS d. SPRAY BOOTS  
e. OPEN SURFACE TANKS f. VENTILATION UNITS

## SECTION 3. SURVEY DATA

a. SURVEY DATE 1-15-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	38-63, Aug 42	FC	58-100	Exempt
Storage Area	21-39, Aug 29	FC	20	Adg

### h. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

1. RESPIRATOR	MANUFACTURER	NIOSH FC NO	P.A.
DISPOSABLE			
A. FACE AIR PURIFYING			
G. FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
HEATED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

## SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
POUDET	Daily use of computer	3	
PO LIFTING	Heavy lifting	3	
PO FOOT HAZ	Foot Hazard	3	
	Falling objects		

## BEST AVAILABLE COPY

PERSONNEL DATA

# Non-Responsive

**COMMENTS** (Add blank sheet of paper if necessary)

- ① Supply dependent -
- ② Autos, work house + issue equipment
- ③ Computer work about 2 hrs/day
- ④ No health problems related to job.
- ⑤ Heavy lifting.

• PRIVACY ACT STATEMENT

Title 6 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in delayed provision of proper medical monitoring.

**Signature**

## Analytical Environmental Servs, Inc.

Date: 2/21/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: Lead wipe  
 Project No: Angel Guardiola  
 PO No:

Lab Order: 0302423  
 Date Received: 2/14/2003 11:30:  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0302423-030A	53	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-031A	54	31.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-032A	55	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-033A	56	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-034A	61	528	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-035A	62	1140	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-036A	63	44.0	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-037A	64	380	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-038A	65	155	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-039A	66	BRL	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-040A	71	2960	µg, Total	7.22	2.55	1/15/2003	2/19/2003
0302423-041A	72	6010	µg, Total	10.0	3.54	1/15/2003	2/19/2003
0302423-042A	73	376	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-043A	74	878	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-044A	75	105	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-045A	76	BRL	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-046A	81	5600	µg, Total	9.76	3.45	1/16/2003	2/19/2003
0302423-047A	82	725	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-048A	83	281	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-049A	84	78.0	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-050A	85	141	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-051A	86	BRL	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-052A	91	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-053A	92	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-054A	93	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-055A	94	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003

Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
 3785 Presidential Parkway  
 Atlanta, GA 30340  
 Tel: (770) 457-8177  
 Fax: (770) 457-8188

AES Job Number: **B13041**  
 Page 1 of 1 Total Samples  
 Wednesday, February 19, 2003

**NVLAP**  
 Lab # 102082-0

### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
 Project Name: Elizabeth Town, NC Armory  
 Client Sample ID: #67  
 Location: From broken ceiling tile - classroom  
 Project Number:  
 AES Lab ID: 125010

Sample Description: Gray soft fibrous to silty with paint

**All percentages given below are visually estimated by volume**

ASBESTOS FIBERS		NON-FIBROUS MATERIALS	
Chrysotile:		Vermiculite:	
Amosite:		Biotite:	
Crocidolite:		Mica:	
Anthophyllite:		Perlite:	
Tremolite:		Aggregates:	
Actinolite:		Styrofoam:	
NON-ASBESTOS FIBERS		OTHERS	
Synthetics:		Aluminum:	
Mineral Wool:	75	Bitumen:	
Fiberglass:		Resilient Material:	
Cellulose:		Glue:	
Animal Hair:		Binders:	25
Antigorite:			

COMMENTS: Paint included as binder.

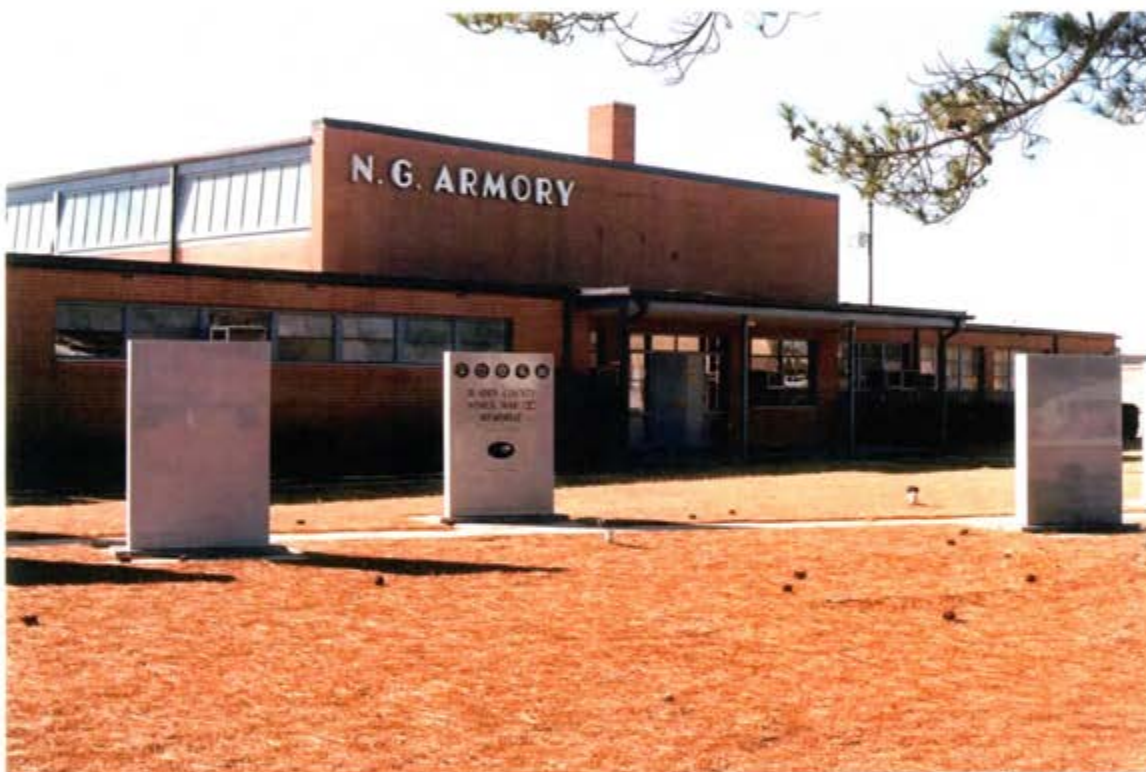
It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

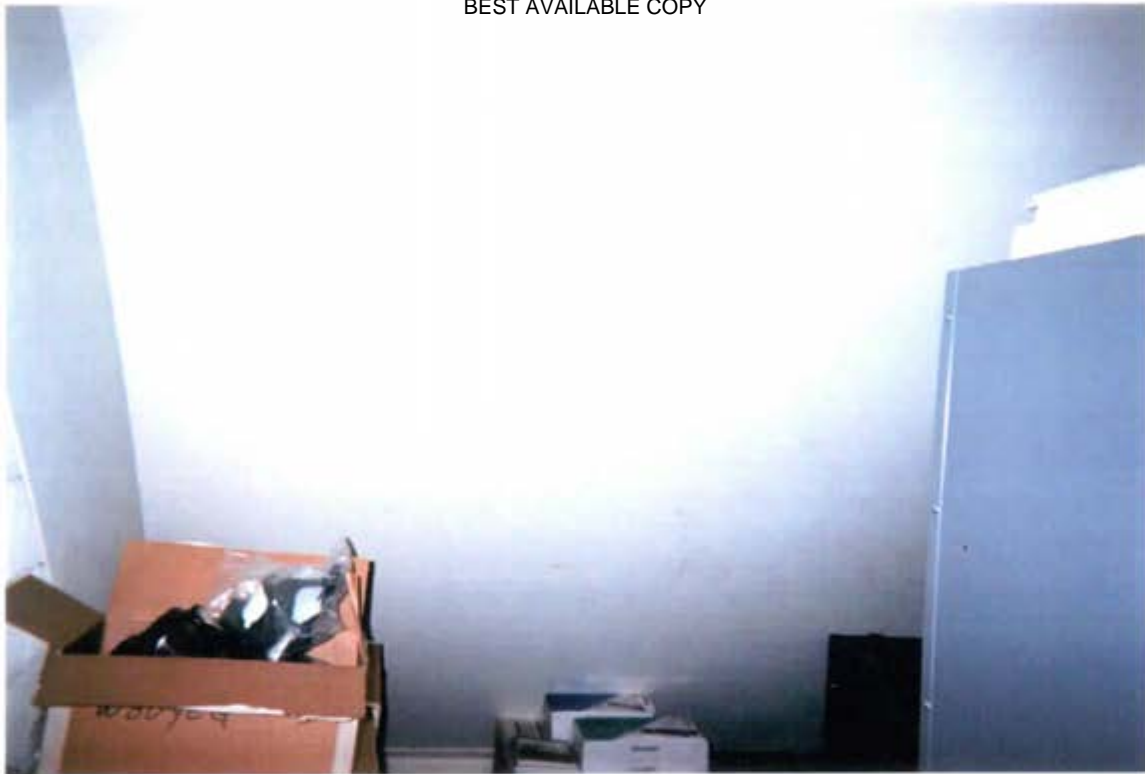
**Non-Responsive**

All percentages given are visually estimated by volume.  
 Determination of Asbestos in Bulk Building Materials, EPA 8460-R-99-010, July 1999. This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.





**Elizabethtown, NC  
Armory**



**IFR Bullet  
Backstop**

**IFR Floor in Front  
of Bullet Backstop**

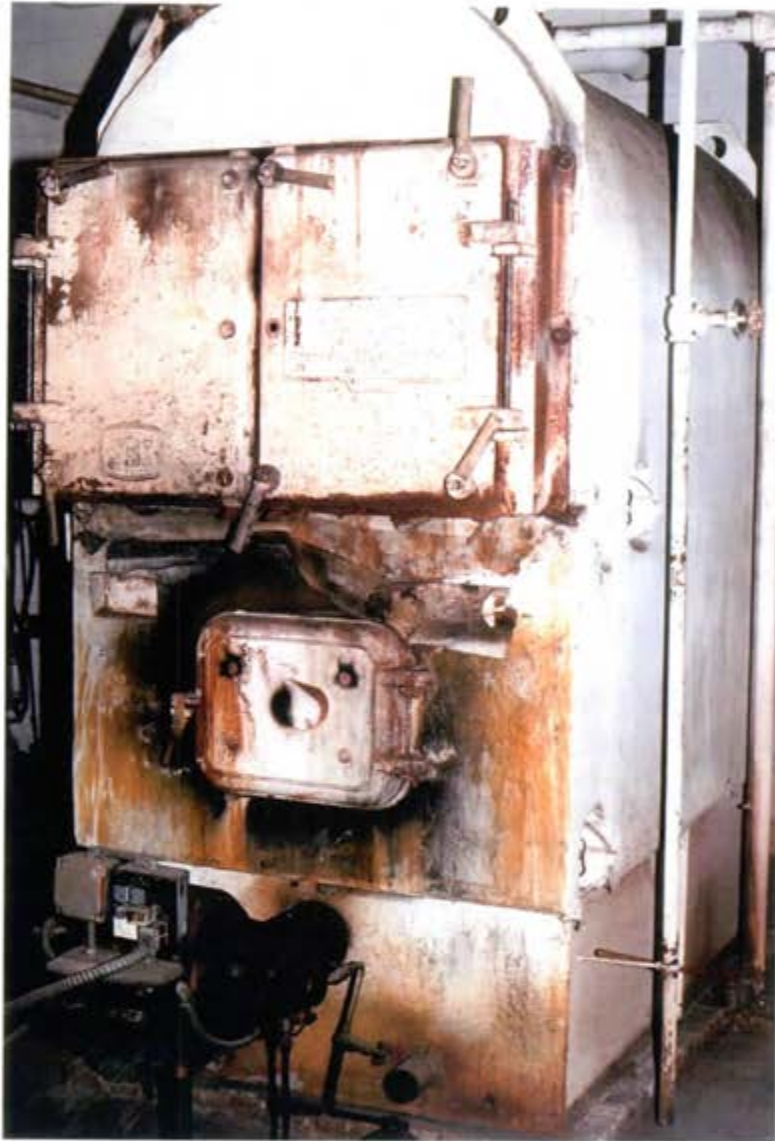






## IFR Sampling Areas





**Boiler**



**A/C Window Unit**

**Heating Grill**







## Motor Pool





**Tank Training  
Simulator building**







**Trailer Used to Store  
Flammables**

**Flammables Stored at  
Maintenance Shed**





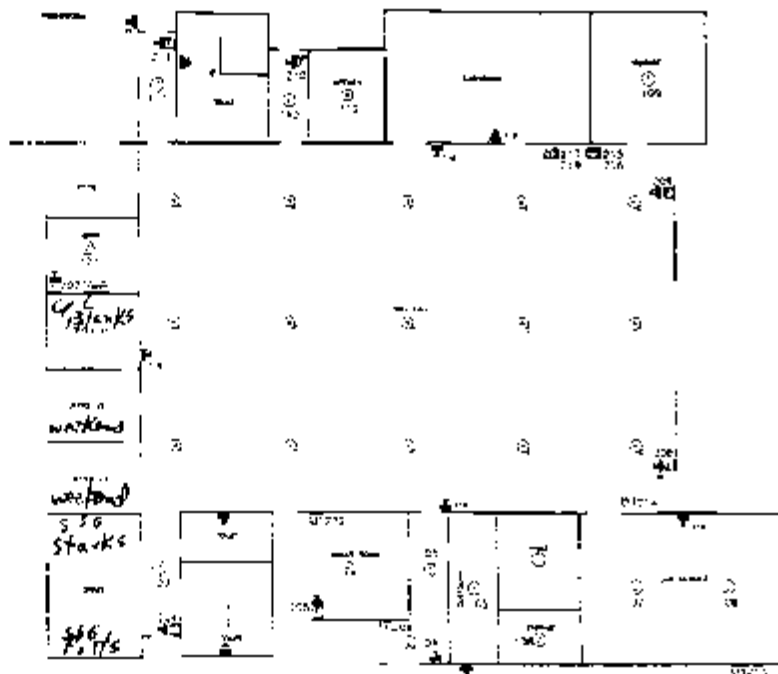
**Broken Ceiling Tile  
Classroom**



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### LEGEND

- FACP FIRE ALARM CONTROL PANEL
- MANUAL PULL STATION
- ② PHOTOELECTRIC SMOKE DETECTOR
- ① ADDRESSABLE HEAT DETECTOR
- ③ CONVENTIONAL HEAT DETECTOR
- ④ THERM PIPING DETECTOR
- ⑤ SINGLE POINT MODULE
- HORN/STROBE
- STROBE



## ELIZABETHTOWN NATIONAL GUARD ARMORY FIRE ALARM SYSTEM

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Det. 1, Troop E,  
196<sup>th</sup> Calvary, ATTN: **Non-Responsive** 1505 Andrew Jackson Hwy, Fair Bluff,  
NC 28439.

SUBJECT: Industrial Hygiene Survey of the **Non-Responsive** National Guard Armory, Fair  
Bluff, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the lead levels in the deactivated Indoor Firing Range and the Drill Hall with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (**Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

March 2, 2003

**Non-Responsive**

**NC Army National Guard Armory  
1505 Andrew Jackson Hwy  
Fair Bluff, NC 28439**

**RE: Baseline Industrial Hygiene Survey**

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**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**FAIR BLUFF ARMORY**

**FAIR BLUFF, NC**

**DATE:**

**JANUARY 15,2003**

**PREPARED BY**

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

**Attachment 1 HHIM Forms**

**Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range**

**Attachment 3 Photographs of Facility**

**Attachment 4 Schematic Drawing of Facility**



## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Angel M. Guardiola performed a Baseline Industrial Hygiene Survey at the NC ARNG Fair Bluff Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Fair Bluff Armory.

The building was finished in 1954. The facility houses the Det. 1 Troop E 196<sup>th</sup> Cavalry. The armory is used by the troops of the Det. 1 Troop E 196<sup>th</sup> Cavalry for their monthly weekend drills.

The Det. 1 Troop E 196<sup>th</sup> Cavalry with 41 troops has 1 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 4.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Readiness NCO Office. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool consists only of a 2.5 pick-up truck. No maintenance is performed at the armory. Repair jobs are performed at the OMS 11 in Fayetteville.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and training during weekend drills. The Drill Hall is used to clean weapons about two times a year. Bay (roll-up) door is kept open when the weapons are cleaned. The Drill Hall is rented for weddings receptions beauty pageants and social events. Renters use catering services.

#### **Boiler Room**

Personnel reported that the boiler works well. The wrapping on the pipes below the valves is beginning to crack. This may peel off and break eventually.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. It has not been used as a firing range in over 25 years. It was "sanitized" about 10 years ago according to personnel. The floor is concrete. Six wipe samples were taken from the IFR. Four of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

Sample Number	Sample Location	Results
71	Bullet backstop	2960ug
72	Floor in front of backstop	6010ug
73	Item 1, stored in IFR	376ug
74	Item 2 stored in IFR	878ug
75	Wall floor next to exit door	105ug
76	Blank	BLR

### **Weapons Vaults**

The Fair Bluff Armory has a weapon storage vault located in the Supply Room. The weapons list includes M-16s, 9mm. Pistols, M-14, M-203 and 120 mortars. The dehumidifier is working and is turned on at all times. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall, about two times a year.

### **A/C Heating System**

Individual window A/C units cool the administrative offices and classroom. Two of the A/C window units are about five years old. Personnel stated that one of them was not working (not cooling) at the time of the survey. There is a central A/C unit in the Drill Hall. This is a newer unit.

### **Material Safety Data Sheets**

There is a new MSDS Book that was produced by an independent contractor the day of the survey. Hazardous Materials Inventory Lists for chemicals in the oil shed and for janitorial supplies were produced too. The oil shed is located at the rear of the building. **Non-Responsive** attended a Hazardous Materials Training about two years ago.

### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 2

**Table 2**

<b>Location</b>	<b>Light Reading (footcandles)</b>	<b>IES Recommendation (footcandles)</b>
ADO Readiness NCO Office	38-62 (Avg. 45)	50-100
Training Room Library	58-71 (Avg. 61)	50-100
ADO Supply Room (Storage)	18-71 (Avg. 47)	20
Lt. Office	73-99 (Avg. 82)	50-100
Plt. Sgt. Office	53-127 (Avg. 81)	50-100
Classroom	50-90 (Avg. 69)	50-100
Drill Hall	28-122 (Avg. 65)	30

Light measurements were below IES guidelines at the Readiness NCO Office. The other areas tested were within IES minimum standards. Consideration should be given to replace burned out light fixtures and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.

- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## **RECOMMENDATIONS**

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3).
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.
- A work order should be submitted to the appropriate state office for the repair of the non working A/C window unit.
- The pipe wrapping below the valves in Boiler Room should be checked periodically. If it starts to break off it should be reported to the proper state authority.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.



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**SECTION 1. DEMOGRAPHIC DATA**

a. ARLOC 37000 b. INSTALLATION Fan Bluff, NC Armory c. BLDG/RM NUMBER Room 106  
 d. LOCATION/CODE Redress NCO e. OPERATION/CODE Supply Training f. DESCRIPTION Computer work about 4 hrs/day  
 g. MACOM/CODE N6 h. SUPERVISOR Non-Responsive  
 i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. RAC Non-Responsive k. FREQUENCY (Hrs Per Day) Non-Responsive  
 l. NO CIV(S) Non-Responsive m. NO MIL Non-Responsive n. NO CONTRACTOR(S) Non-Responsive o. NO LOC(S) Non-Responsive p. NO OTHER Non-Responsive

**SECTION 2. IH STAFFING DATA**

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTHS Non-Responsive  
 e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

**SECTION 3. SURVEY DATA**

a. SURVEY DATE 1-15-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
Lighting - Office	38-62, Aug. 45	FC	50-100	Inadgt
Supply - Storage	18-71, Aug. 47	FC	20	Adgt.

**h. PERSONAL PROTECTIVE EQUIPMENT (H-REQUIRED; A-AVAILABLE)**

1. RESPIRATOR	MANUFACTURER	NIOSH TC NO	2. A
DISPOSABLE			
W/ FACE AIR PURIFYING			
W/ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNES	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

**SECTION 4. HAZARD INVENTORY DATA**

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES OR NO)
PO UDT	Daily use of Computers for long periods of time	3	
PO LIETING	Heavy lifting	3	
PO FOOT/HAZ	Foot hazard	3	

## BEST AVAILABLE COPY

PERSONNEL DATA

# Non-Responsive

**COMMENTS** (Add blank sheet of paper if necessary)

- ① Reduces NCD
- ② Also supply, Training Administration
- ③ Computer work about 4 hr/day
- ④ No health problem associated with job
- ⑤ Should take breaks when using computers for long period of time
- ⑥ Occasional heavy lifting
- ⑦ Steel toe shoes used frequently

• **PRIVACY ACT STATEMENT**

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each VA civilian employee exposed to a hazardous workplace at operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

**Signature**

Analytical Environmental Servs, Inc.

Date: 2/21/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT:	<b>Non-Responsive</b>	Lab Order:	0302423
Project:	Lead Wipe	Date Received:	2/14/2003 11:30:
Project No:	Angel Guardiola	Matrix:	Wipe
PO No:		Analyst:	<b>Non-Responsive</b>

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0302423-030A	53	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
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0302423-041A	72	6010	µg, Total	10.0	3.54	1/15/2003	2/19/2003
0302423-042A	73	376	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-043A	74	878	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-044A	75	105	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-045A	76	BRL	µg, Total	2.83	1	1/15/2003	2/19/2003
0302423-046A	81	5600	µg, Total	9.76	3.45	1/16/2003	2/19/2003
0302423-047A	82	725	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-048A	83	281	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-049A	84	78.0	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-050A	85	141	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-051A	86	BRL	µg, Total	2.83	1	1/16/2003	2/19/2003
0302423-052A	91	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-053A	92	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-054A	93	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003
0302423-055A	94	BRL	µg, Total	2.83	1	1/27/2003	2/19/2003

Qualifiers: MDL - Method Detection Limit  
ND - Not Detected at the Reporting Limit

DF - Dilution Factor

Page 2 of 2





**Fair Bluff, NC  
Armory**





**Drill Hall**





**A/C Window Unit**

**Heating Grill**





**IFR Front View**

**IFR Rear View**







**IFR Bullet Backstop**

**IFR Floor in Front  
of Bullet Backstop**





## IFR Sampling areas



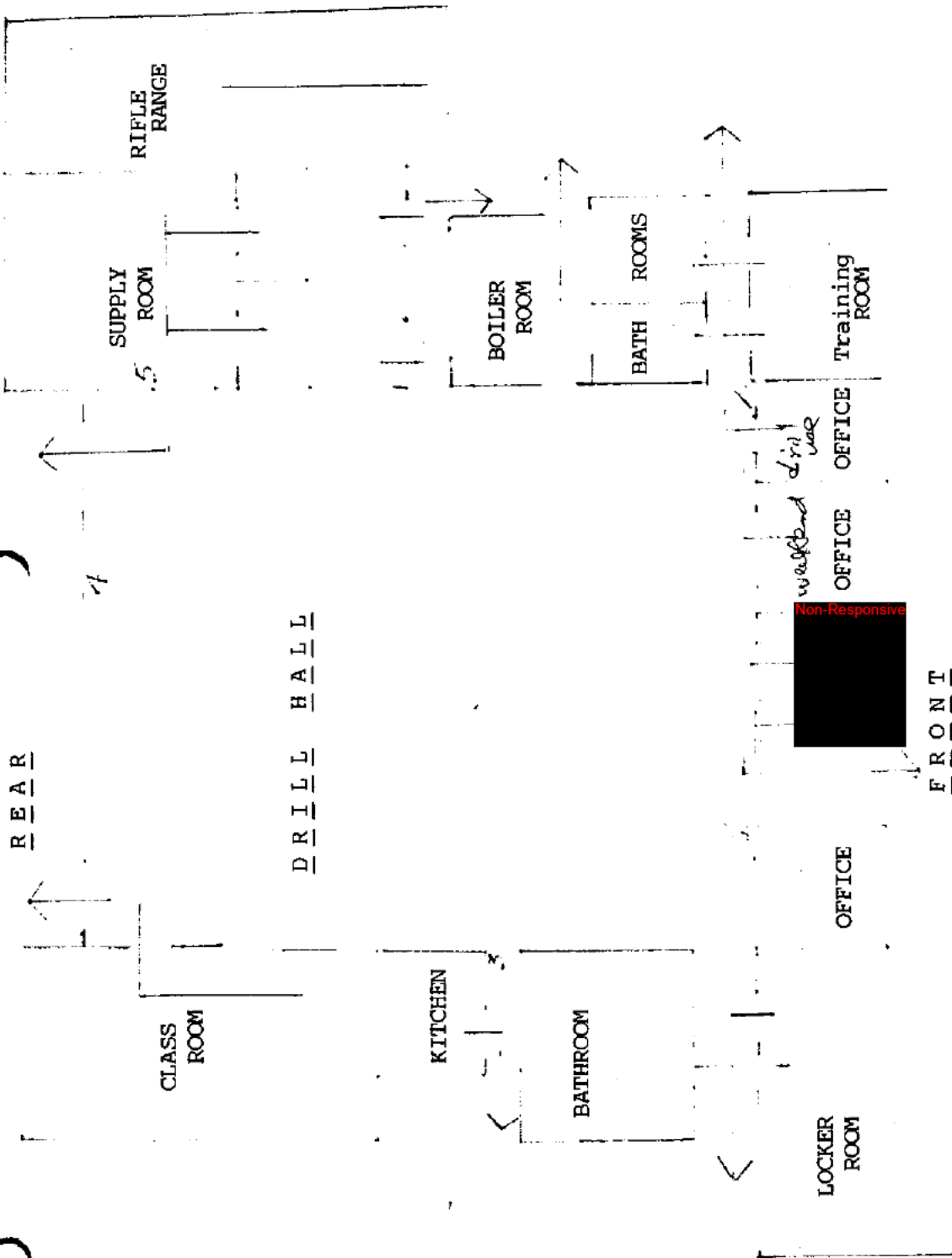




**Boiler**

**Motor Pool**





FIRE EVACUATION PLAN - FOLLOW ARROWS  
IN CASE OF FIRE DIAL 649-7699

NUMBERS 1 THRU 5 INDICATE LOCATION OF FIRE EXTINGUISHERS.

*Fair Bluff, NC Armory*

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard, Detachment 1, 691<sup>st</sup> Maintenance Company, ATTN: Anita Toler, 603 West Home Ave, Farmville, North Carolina, 27828.

SUBJECT: Industrial Hygiene Survey of the Farmville National Guard Armory, Farmville, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. **Non-Responsive** Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high Asbestos levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee asbestos exposures during any type of repair and or renovation.**

d. **Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed, contact the contractor.

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.



**LAE Consulting**

1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

6 June 2002

MEMORANDUM FOR: Detachment 1, 691<sup>st</sup> Maintenance Company, ATTN: [Redacted]  
[Redacted] 03 West Horne Avenue, Farmville, North Carolina, 27828

SUBJECT: Industrial Hygiene Survey of Farmville National Guard Armory, Farmville, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Farmville NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

**SUBJECT: Industrial Hygiene Survey of Farmville National Guard Armory, Farmville North Carolina**

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, **Non-Responsive** of LAE Consulting conducted an industrial hygiene survey at the Farmville National Guard Armory in Farmville, North Carolina on 21 May 2002.

4. Facility Description. This facility currently houses the Detachment 1, 691<sup>st</sup> Maintenance Company. The Armory has one full time soldier. The soldier performs administrative duties Monday through Friday between 0800 and 2000 hours. The Armory is utilized for drills on the weekend. The building was constructed in the 1960s. The facility houses six administrative areas, one kitchen, three classrooms, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. A deactivated Indoor Firing Range was converted into a large storage areas and weight room. The range is currently used to store excess equipment and supplies. The backstop has been painted but bullet holes are visible. The floor of the range is concrete. The walls are cinder block. Acoustic wall tiles have not been removed. Five bags of sand weighing 10,140 pounds was removed on January 4, 1996. Eight wipe samples for Lead were taken (Table 1). Six of the eight samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3).

Table 1

Sample Number	Sample Location	Results
185	Right side of backstop 12 ft	310 ug/ft <sup>2</sup>
186	Middle backstop 6 ft	310 ug/ft <sup>2</sup>
187	Left side backstop 5 ft	37 ug/ft <sup>2</sup>
188	Pit floor Right side near backstop	2500 ug/ft <sup>2</sup>
189	Pit Floor middle of floor	4000 ug/ft <sup>2</sup>
190	Target holder	340 ug/ft <sup>2</sup>
191	Acoustic tile	23 ug/ft <sup>2</sup>
192	2 <sup>nd</sup> ceiling deflector from the rear of range	2400 ug/ft <sup>2</sup>

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 2

**SUBJECT: Industrial Hygiene Survey of Farmville National Guard Armory, Farmville, North Carolina**

b. Three samples were taken for Asbestos analysis. Samples were taken from brown floor tile located throughout the Armory, ceiling tile from a classroom, and acoustic tile material from the Deactivated Indoor firing range. Two of the three samples (the brown floor tile) contained 2% Chrysotile Asbestos.

c. A soldier from OMS #18 was found performing vehicle maintenance in the armory Drill Hall. The soldier was repair a drive shaft on a heavy wheeled diesel vehicle. A maintenance tent is conveniently located in the rear of the Armory. The soldier stated that maintenance in the tent is not feasible since it has a asphalt floor. The tent is currently used for storage.

d. Chemicals such as brake free (weapons lubricant), paint, multipurpose cleaner, are stored in the Office Supply Area. The unit has a new Hazardous Chemical Storage building that has not been set up.

e. Plans are in progress to renovate the 92A office into a Sleeping bay. Soldiers who need to stay overnight will be housed in this area. The area currently has a window air conditioning unit. A false wall is constructed between the library and this space. Currently there are no floor plans.

f. A visual survey was performed in the Arms room. There was no evidence of weapons repair seen in this room. There is no ventilation system located within the Arms room.

**6. Recommendations.**

a. Recommend the North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling.

b. Material is considered Asbestos containing material (ACM) when it contains >1% of Asbestos. Contact the North Carolina Occupational Health and Safety office for technical guidance.

JAL Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Farmville National Guard Armory, Farmville North Carolina

- c. Discontinue the use of the Drill Hall as a vehicle maintenance area. Carbon monoxide can enter administrative areas through the ventilation systems. Consider utilizing the maintenance tent. If funds become available construct a concrete slab
- d. Submit a work order to the North Carolina Engineering office to provide assistance in setting up the Hazardous Material storage building.
- e. Contact the North Carolina Occupational Health and Safety Office and the Engineering Office to advise on code and safety requirements for a Sleeping bay. Consider all issues such as ventilation, capacity, and health and welfare of the soldier when addressing this project.
- f. Continue to discourage weapons repair in the Arms room. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition.

LAF Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551 2717

Page 4

SUBJECT: Industrial Hygiene Survey of Farmville National Guard Armory, Farmville  
North Carolina

7. Technical Assistance. For technical assistance regarding information found in this  
the Southeast Regional Industrial Hygiene

**Non-Responsive**

**Non-Responsive**

4 Encl

1. Building Diagram
2. HHIM
3. Facility Photos
4. Lead Wipe Results

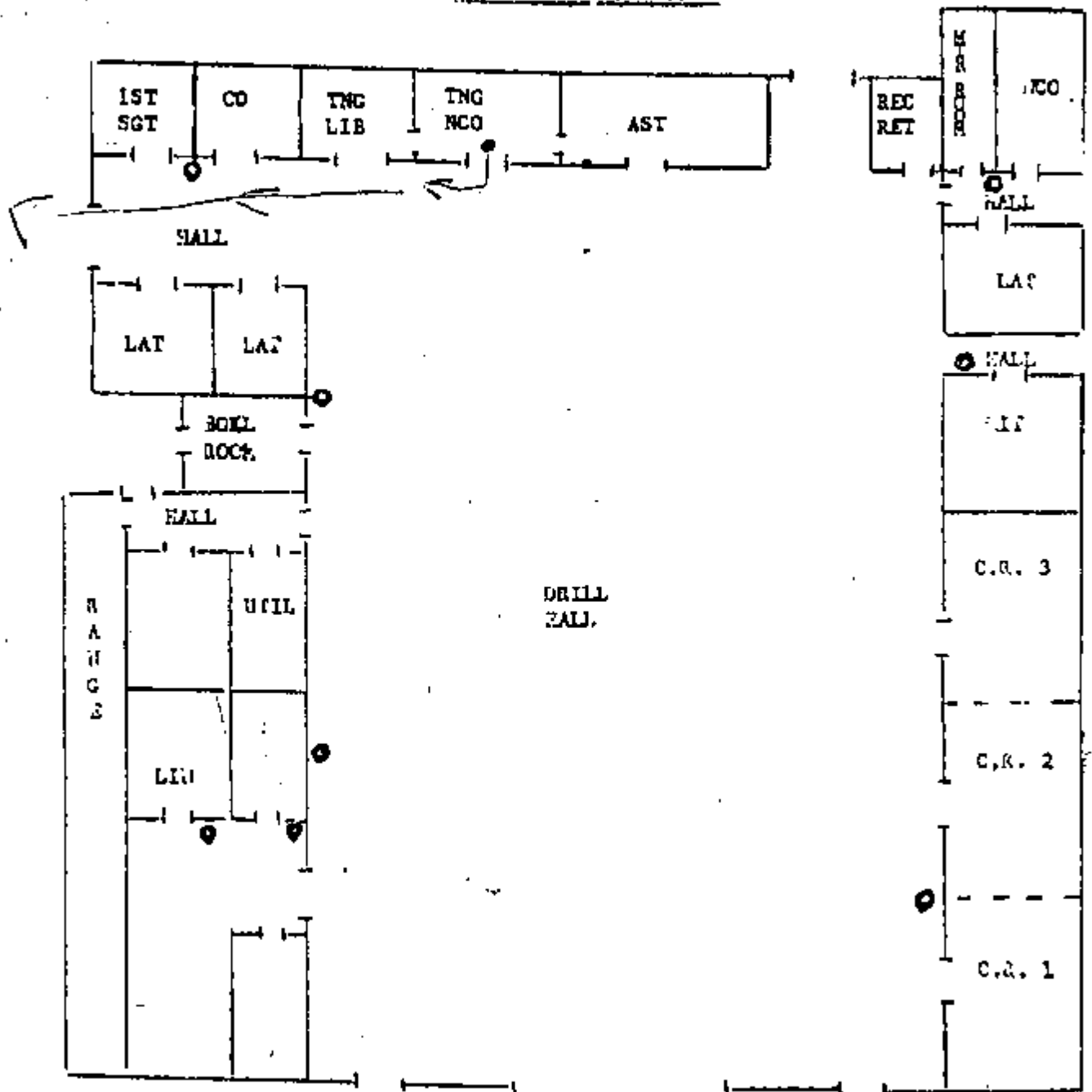
CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAB Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page: 5

DEPARTMENT OF THE ARMY  
 Det. 1 691 3rd Infantry (Mech) (and IS)  
 NORTH CAROLINA NATIONAL GUARD  
 Post Office Box 186  
 Jacksonville, North Carolina 27820

FILE EVACUATION PLAN





# AMA Analytical Services, Inc.

Microscopic & Optical Microscopy Services

## CERTIFICATE OF ANALYSIS

NY ELAP  
AIHA

Client: LAE Consulting  
Address: 1218 Scattered Pine Court  
Seven, Maryland 21144

Job Name: Farnville National Guard Armory N.C.  
Job Location: Not Provided  
Job Number: Not Provided  
P.O. Number: Not Provided

Chain of Custody: 88414  
Date Analyzed: 6/30/02  
Person Submitting: [Redacted]  
Report Date: 03-31-02

Page 1 of 1

### Summary of Atomic Absorption Analysis for Lead

BEST AVAILABLE COPY

AMA Sample Number	Client Sample Number	Analysis Type	Sample Type	Air Volume (L)	Air Flow (ft <sup>3</sup> )	Reporting Limit	Final Result	Comments
0251872	185	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	310 ug/l <sup>a</sup>	
0251873	186	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	310 ug/l <sup>a</sup>	
0251874	187	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	37 ug/l <sup>a</sup>	
0251875	188	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	2500 ug/l <sup>a</sup>	
0251876	189	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	4000 ug/l <sup>a</sup>	
0251877	190	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	340 ug/l <sup>a</sup>	
0251878	191	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	23 ug/l <sup>a</sup>	
0251879	192	Flame	Wipe	****	1,000	20.00 ug/l <sup>a</sup>	2400 ug/l <sup>a</sup>	

Analysis Method for Flame (Wipes, Paints, Aids and Solids): EPA 600/R-93/2001M-7420  
Analysis Method for Furnace: AIA: EPA 600/R-93/2001M-7421, Water: EPA 200.9

N/A = Not Applicable  
mg/kg = parts per million (ppm) by weight  
%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]

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of similar products. As a mutual protection to clients, the public and those who receive 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 any advertising or publicity matter without prior written authorization from us. Sample types, methods and collection procedures 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. Accidental sample mislabeling will be discussed with the appropriate regulatory guidelines, unless otherwise requested by the client. NY ELAP Accreditation applies only to polynuclear aromatic hydrocarbons of both samples and transmission electron microscopy of AHERA air samples.

AMA Analytical Services, Inc., 347 5th Ave., 2nd Floor, New York, NY 10001-2001, Attention: Laboratory  
5575 Furber Blvd. • Lutham, MD 20706 • (301) 429-2610 • FAX (301) 429-2611 • E-mail: info@ama-analytical.com

# AMA Analytical Services, Inc.

Microanal. & Optical Microscopy Services

## CERTIFICATE OF ANALYSIS

Client: LAL Consulting  
Address: 1218 Sausalito Pine Court  
Severn, Maryland 21144

Job Name: Farmville N.G. Anthony, North Carolina  
Job Location: Not Provided  
Job Number: Not Provided  
P.O. Number: Not Provided

Chain Of Custody: 88413  
Date Analyzed: 06/03/2002  
Person Submitting: [Redacted]

NVLAP  
NY ELAP  
AIHA

Attention: [Redacted]

### Summary of Polarized Light Microscopy

AMA Sample Number	Client Sample #	Total Adbestos Percent	Chrysotile Percent	Amosite Percent	Crocidolite Percent	Other Adbestos Percent	Mineral Wool Percent	Fiberglass Percent	Organic Percent	Synthetic Percent	Other Percent	Particulate Percent	Sample Color	Analyst ID	Comments
-------------------	-----------------	------------------------	--------------------	-----------------	---------------------	------------------------	----------------------	--------------------	-----------------	-------------------	---------------	---------------------	--------------	------------	----------

0251857	010	2	2	-	-	-	-	-	-	-	-	98	Brown LB		
0251858	011	NAD	-	-	-	-	70	-	TR	-	TR	30	Off-White LB		
0251859	012	NAD	-	-	-	-	-	-	-	-	2	98	Beige LB		

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-97/116 dated July 1993

NAD = "No Asbestos Detected"

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

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of any other products. As a national 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 and horizontal liability for the accuracy and completeness of this information. Reduced 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 AIBRA air samples.

At AIHA/ELAP, NVLAP EQ 101133, c/o New York 22 Air (10970) Accredited Laboratory  
4575 Forbes Blvd., Landover, MD 20786 • (301) 459-2640 • Toll Free (800) 336-0791 • Fax (301) 459-2642

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**Office Supply Storage Room  
Site of Hazardous Chemical Storage (on cart)**



**Hazmat storage building**





**Armory Library**



**Vehicle Maintenance being performed in Drill Hall**



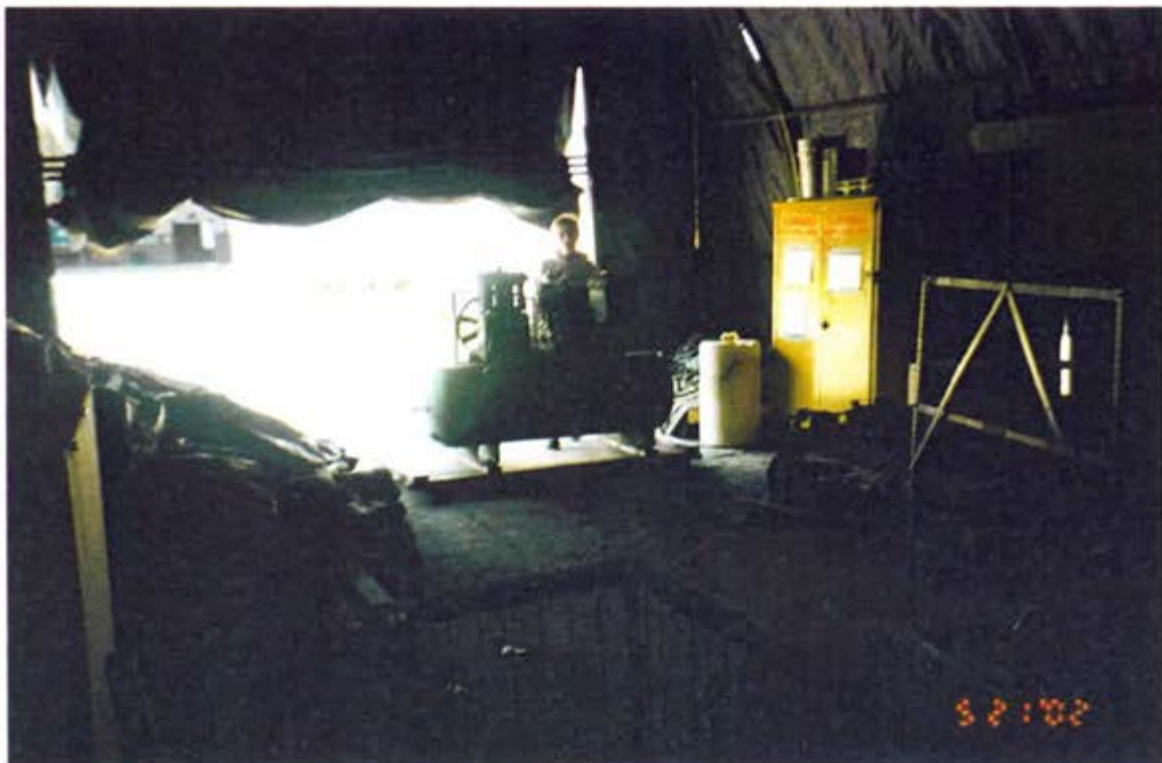
Views of the current 92A Office that  
will be converted into a sleeping area







Exterior and Interior views of the Maintenance Tent







Views Up and Down range of Converted  
Indoor Firing Range



# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION Farmville National Guard Armory Farmville NC. 27828	BLDG/RM NO. 603 W. Horne Ave.
LOCATION/CODE AA- Administrative		OPERATION/CODE ADO-
SURVEY DATE 21 May 02		EVALUATOR (Initials) Non-Responsive
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR Non-Responsive
TELEPHONE/DSN NO. Non-Responsive	UNIT/ORGANIZATION DET 1 691st MAIN CO	RAC 4
MIL 1	NO. CONTRACTOR(S)	NO. LOC(S)
		NO. OTHER 8 hrs/day

## SECTION 2. FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS	VENTILATION UNITS

## SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIRLINE			/
COLD SURFACES	/	ABRASIVE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	/	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	/	COLD WEATHER BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	/	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNESS	/		/

Safety

**GUIDELINES FOR CONVERTING  
INDOOR FIRING RANGES TO OTHER USES**

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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**Appendices**

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

**Glossary**

- 1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
- 2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

**APPENDIX B**  
**INTERPRETATION OF SAMPLE RESULTS**  
**(PRIOR TO CLEANING)**

**0-1 200 micrograms/kg H or LESS**

If all sample results are 200 micrograms/sq ft or less, the range can be converted and/or used for any purpose.

**B-2 BETWEEN 201 and 200,000 micrograms/  
sq ft**

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 18. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

[illegible]

**B-4** High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

### APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

**C-1 200 micrograms/kg 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. The paint color must contrast the color of the present subminimum.

**C-2 ABOVE 200 micrograms/eq ft**

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 micrograms/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**



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STATE OF NORTH CAROLINA  
DEPARTMENT OF CRIME CONTROL AND PUBLIC SAFETY  
OFFICE OF THE ADJUTANT GENERAL  
NORTH CAROLINA NATIONAL GUARD



Non-Responsive

Non-Responsive

OTAGNC-AGSO

2 December 1996

MEMORANDUM FOR ARMORY FACILITY ENVIRONMENTAL COORDINATIONS

SUBJECT: Indoor Rifle Ranges/Lead Contaminated Sand

1. Reference OTAGNC-AGEO memorandum, subject as above dated 22 September 1993.
2. Most of the non-operational indoor firing ranges have been tested for lead contamination of the sand from the sandpits, however, the results of those tests have not been returned by U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM) and National Guard Bureau.
3. Until a lead contamination determination is made at your facility, no portion of any indoor range can be used. This includes the following usages:

- Office space
- Food vending machines
- Gyms or weight rooms
- Storage of medical/ any supplies
- Personnel activity/training areas

4. POC is Non-Responsive

FOR THE DIRECTOR, AVIATION & SAFETY:

Non-Responsive

Heard Manager

CF:  
COFS  
AGEO  
TRP CMD  
ENG BDE  
AGIG  
DCSLOG  
INF BDE

4105 REEDY CREEK ROAD, RALEIGH, NC 27607-6410, TELEPHONE (919) 664-6000, DSN 582-9210  
An Equal Opportunity/Affirmative Action Employer





**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, 691<sup>st</sup> Maintenance Company, ATTN: **Non-Responsive** 01 Pipping Street, Fremont, NC 27830.

SUBJECT: Industrial Hygiene Survey of the Fremont National Guard Armory, Fremont, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the lead levels in the deactivated Indoor Firing Range and the Drill Hall with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **Non-Responsive** COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive**, Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

March 2, 2003

**Non-Responsive**

**NC Army National Guard Armory  
101 Pipping St.  
Fremont, NC 27830**

**RE: Baseline Industrial Hygiene Survey**

BEST AVAILABLE COPY

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**FREMONT ARMORY**

**FREMONT, NC**

**DATE:**

**JANUARY 13,2003**

**PREPARED BY**

**Non-Responsive**  
385 GINGER CAKE RD  
FAYETTEVILLE, GA 30214  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Drill Hall

Attachment 4 Photographs of Facility

Attachment 5 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Fremont Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Fremont Armory.

The building was finished in 1972. The facility houses the 691<sup>st</sup> Maintenance Co. The armory is used by the troops of the 691<sup>st</sup> Maintenance Co. for their monthly weekend drills.

The 691<sup>st</sup> Maintenance Co. with 85 troops has 2 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classrooms, a Supply Room, a Weapons Vault, a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter



### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Supply Room office (34 FC with only 15 FC at the computer). There were three light fixtures out in the Classroom. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes 1.25T M998 HMMWV, 2.5T trucks, 5T trucks, 1.25T pick-up trucks, 12T trailers, 25 T wreckers, fuel truck, and water buffaloes. Operational and organizational level maintenance performed at the armory (normally done outside). Other repair jobs are performed at the OMS in Kinston.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and training during weekend drills. The Drill Hall is used to clean weapons about four times a year. Bay (roll-up) door is kept open when the weapons are cleaned. There are no exhaust ventilation fans in the Drill Hall. Even though is not normally done, the Drill Hall has been used recently for maintenance and repair due to the inclement weather.

#### **Boiler Room**

Personnel reported that they have difficulty controlling the temperature or regulating the heat with the thermostat most of the time. That due to the age of the boiler is hard to find repair parts and that the switches have to be repaired almost every year. The state office of engineer has been notified about these problems. Personnel also stated that many times when the boiler turns on it causes like a power surge at the offices that interfere with the functioning of the computers. They are concerned that this may be a power hazard. An ice machine and a refrigerator or freezer were stored in the Boiler Room at the time of the survey (See pictures).

### Deactivated Indoor Firing Range

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. Original acoustic material is present on the walls. The floor is concrete. Six wipe samples were taken from the IFR. One of the six samples was above the clearance level of 200ug/R2. See table 1 for results.

**Table 1**

Sample Number	Sample Location	Results
1	Bullet backstop	69ug
2	Floor in front of backstop	103ug
3	Item 1, floor midway up	218ug
4	Item 2 stored metal rail	66ug
5	Wall floor next to exit door	53ug
6	Blank	BLR

### Drill Hall Laboratory Sampling

**Table 2**

Sample Number	Sample Location	Results
11	Table	50ug
12	Flag stand	26ug
13	Blank	BRL

### **Weapons Vaults**

The Fremont Armory has a weapon storage vault located in the Supply Room. The weapons list includes M-16s, 9mm. pistols, 209 rocket launchers, cruiser weapons and shotguns. The dehumidifier is turned on at all times. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall, about four times a year.

### **A/C Heating System**

Individual window A/C units cool the administrative offices and classroom. The armory has only one Central A/C unit. This is a newer unit that is used to cool Supply Room.

### **Material Safety Data Sheets**

The MSDS Book master copy is located at the Readiness NCO Office. Personnel reported that the book is updated as new products come in. Inventory is done once a month with weekly inspection. There are two Hazardous Materials List present. One located in the Flammables cabinet and the other in Oil Shed. Several troop members have gone to Hazardous Materials Training. These troops help with the updating of the MSDS Book.

### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

**Table 3**

<b>Location</b>	<b>Light Reading (footcandles)</b>	<b>IES Recommendation (footcandles)</b>
ADO Readiness NCO Office	55-78 (Avg. 68)	50-100
ADO Training Office	62-81 (Avg. 75)	50-100
ADO Recruiting Office	54-78 (Avg. 70)	50-100
CO Office	62-79 (Avg. 72)	50-100
Orderly Room	46-73 (Avg. 57)	50-100
Classroom	42-86 (Avg. 70)	50-100
ADO Supply Room Office	15-44 (Avg. 34)	50-100

ADO Supply Room (Storage)	20-26 (Avg. 22)	20
Drill Hall	54-200 (Avg. 86)	30

Light measurements were below IES guidelines at the Supply Room office (34 FC with only 15 FC at the computer). There were three light fixtures out in the Classroom. The other areas tested were within IES minimum standards. Consideration should be given to replace burned out light fixtures and/or provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### 4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out light fixtures are replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Discourage the use of the Drill Hall for vehicles repairs as much as possible.
- A work order should be re-submitted to the appropriate state office for the repair of the Boiler system, to assure a better operation and to address the concerns of personnel related to the possibility of power hazard.
- Recommend the removal of the ice machine and refrigerator or freezer from the Boiler Room.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.

BEST AVAILABLE COPY

SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Freemont, NC Armory c. BLOC/RM NUMBER Reber's NCO  
d. LOCATION/CODE At e. OPERATION/CODE AD f. DESCRIPTION Reber's NCO Training & Supply, computer work about 4-5 hrs/day.  
g. MACOM/CODE NG h. OM/CODE Non-Responsive i. SUPERVISOR Price  
j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. RAC Non-Responsive l. FREQUENCY (Hrs Per Day) Non-Responsive  
m. NO CIV(S) Non-Responsive n. NO MIL Non-Responsive o. NO CONTRACTOR(S) Non-Responsive p. NO LOC(S) Non-Responsive q. NO OTHER Non-Responsive

SECTION 2. IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTH-S Non-Responsive  
e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

SECTION 3. SURVEY DATA

a. SURVEY DATE 1-13-03 b. EVALUATOR (INITIALS) Non-Responsive

c. CONTROLS PRESENT	d. EVALUATION	e. UNIT CODE	f. CONTROLS REQUIRED	g. STATUS
<u>Lighting</u>	<u>55-78 Aug 688</u>	<u>FL</u>	<u>50-10-0</u>	<u>ADGT</u>

h. PERSONAL PROTECTIVE EQUIPMENT (H-REQUIRED; A-AVAILABLE)

i. RESPIRATOR	MANUFACTURER	NIOSH TC NO	R/A
DISPOSABLE			
W/ FACE AIR PURIFYING			
W/ FACE AIR PURIFYING			
FULL FACE AIR PURIFYING			
POWERED AIR PURIFYING			
AIRLINE			
SELF-CONTAINED			
ABRASIVE BLASTING HOOD			

2. GLOVES	R/A	3. EYES/FACE	R/A	4. HEARING	R/A	5. BODY	R/A	6. HEAD/FOOT	R/A
ACID	/	CHEMICAL/SPLASH	/	MUFFS	/	APRONS	/	HARD HATS	/
OIL	/	SAFETY/IMPACT	/	EARPLUGS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SOLVENTS	/	CHEMICAL/SAFETY	/	CANAL CAPS	/	FULL BODY SUIT	/	SAFETY CONDUCT SHOES	/
HOT SURFACES	/	FULL FACE SHIELD	/	HELMETS	/	SAFETY BELT/HARNESS	/	SAFETY/NONCONDUCTIVE SHOES	/
COLD SURFACES	/	WELDING HELMET	/			HEAT REFLECT VEST/SUIT	/		
NBC AGENTS	/								

SECTION 4. HAZARD INVENTORY DATA

a. CAS CODE	b. HAZARD DESCRIPTION	c. PAC or EPC	d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)
<u>POVT</u>	<u>Daily use of computer for long periods of time</u>	<u>3</u>	



[illegible]

**SECTION 6.**

## PERSONNEL DATA

[illegible]

SECTION 7.

**COMMENTS** (*Add blank sheet of paper if necessary.*)

- COMMENTS** (Add blank sheet of paper if necessary)
- ① Readiness NCO Training  
② Computer work about 4-5 hrs/day  
③ Takes breaks often - especially when phone rings & other interruptions  
④ No other health problems associated with job.

**\* PRIVACY ACT STATEMENT**

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

**Signature**

## Analytical Environmental Servs, Inc.

Date: 2/21/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT:	Non-Responsive	Lab Order:	0302423
Project:	Lead Wipe	Date Received:	2/14/2003 11:30:
Project No:	Angel Guardiola	Matrix:	Wipe
PO No:		Analyst:	Non-Responsive

Fremont  
Armory

Laboratory ID	Client Sample ID	Results	Units	MDL	DF	Date Collected	Date Analyzed
0302423-001A	1	69.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-002A	2	103	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-003A	3	218	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-004A	4	66.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-005A	5	53.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-006A	6	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-007A	11	50.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-008A	12	26.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-009A	13	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-010A	21	4840	µg, Total	9.17	3.24	1/13/2003	2/19/2003
0302423-011A	22	1820	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-012A	23	1090	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-013A	24	538	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-014A	25	160	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-015A	26	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-016A	31	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-017A	32	28.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-018A	33	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-019A	34	25.0	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-020A	35	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-021A	36	BRL	µg, Total	2.83	1	1/13/2003	2/19/2003
0302423-022A	41	2290	µg, Total	6.08	2.15	1/14/2003	2/19/2003
0302423-023A	42	192	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-024A	43	57.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-025A	44	74.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-026A	45	21.0	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-027A	46	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-028A	51	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003
0302423-029A	52	BRL	µg, Total	2.83	1	1/14/2003	2/19/2003

Qualifiers: MDL - Method Detection Limit  
ND - Not Detected at the Reporting Limit

DF - Dilution Factor



Fremont, NC  
Armory







## Drill Hall





**Boiler Room**

**Ice Machine and  
Refrigerator Stored in  
Boiler Room**





**IFR, Bullet  
Backstop**

**IFR, Floor in Front  
of Bullet Backstop**







## IFR, Sampling Areas



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## Drill Hall, Sampling Areas





**Flammables  
Cabinet**

**Oil Shed**







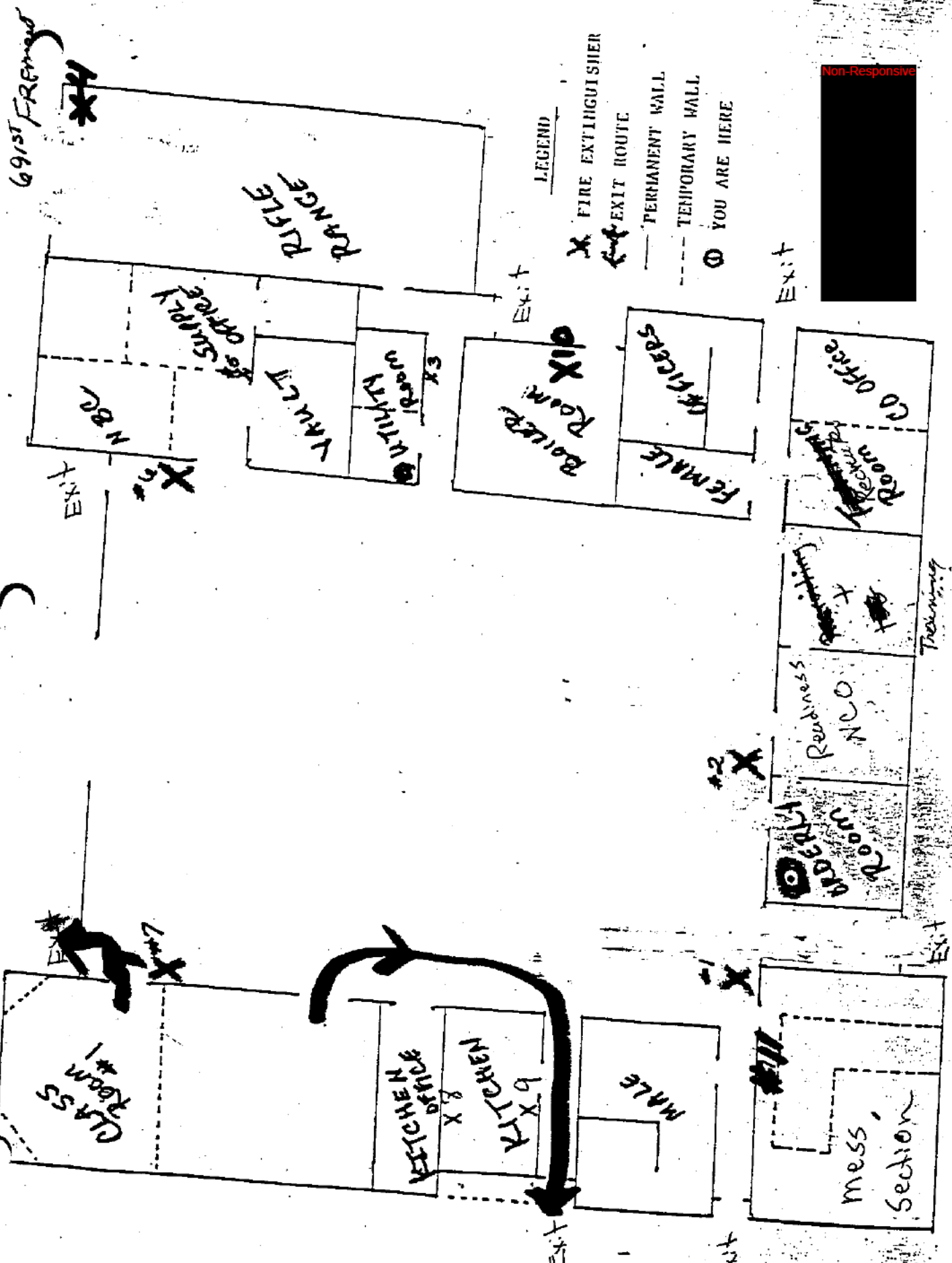
## Motor Pool





## Motor Pool





Fremond, NC Armory



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard, 514<sup>th</sup> MP Company,  
ATTN: **Non-Responsive** 401 N. Memorial Drive, Greenville, North Carolina,  
278304.

SUBJECT: Industrial Hygiene Survey of the Greenville National Guard Armory,  
Greenville, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** of LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

# Non-Responsive

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**LAE CONSULTING**

1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

9 June 2002

MEMORANDUM FOR: 514<sup>th</sup> MP Company, ATTN: **Non-Responsive** 1401 N.  
Memorial Drive, Greenville, North Carolina, 278304

SUBJECT: Industrial Hygiene Survey of Greenville National Guard Armory, Greenville,  
North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
- h. TB Med 530, Occupational and Environmental Health Food Service Sanitation, December 1982.

1. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Greenville NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. An illumination survey was conducted in the kitchen and Pots and Pans area. A diagram of the building can be found in Enclosure 1. Health Hazard Inventories can be found in Enclosure 2. Photographs of the facility can be found in Enclosure 3.

SUBJECT: Industrial Hygiene Survey of Greenville National Guard Armory, Greenville, North Carolina

2. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Greenville National Guard Armory in, North Carolina on 20 May 2002 by **Non-Responsive** Consulting.

3. Facility Description. This facility houses the 514th Military Police Company. The Armory has four full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000. The Armory is utilized for drills on the weekend. The building was built around 1967 and renovated in 2001 after Hurricane Floyd destroyed the Armory. The facility now houses nine administrative areas, one kitchen, two classrooms, an Armory hall, Supply Room, and Arms Room.

4. Instrumentation. The industrial hygiene survey was conducted utilizing instrumentation provided by the Region South Industrial Hygiene Office: SPER Scientific Light Meter, S/N 025427, calibrated 18 March 2001.

5. Findings.

a. Material Safety Data Sheets (MSDS) were available and maintained in the Armory's Safety Office. A Hazardous Material Inventory was located in the Hazardous Material Storage building. Current Armory personnel are not trained in Hazard Communication.

b. The Arms room located within the Supply Room was visually surveyed. The Arms room is a two room space which houses weapons and NBC equipment. Personnel stated that accountability and issuing of weapons and NBC equipment is performed in this space. There is no ventilation system located within this room. There was no evidence of weapons repair seen in this room. Personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Phone: (410) 551-2717

**SUBJECT:** Industrial Hygiene Survey of Greenville National Guard Armory, Greenville, North Carolina

c. A deactivated Indoor Firing Range was converted into a storage area and office. The area is divided into 4 spaces separated by Metal mesh walls. The spaces store Communication equipment, administrative supplies, and NBC mask. An office was constructed where the pit and backstop of the Range would have been located. An overhead rolling door is located in the rear or up range. In January 1996, prior to the hurricane 15 bags of sand weighing 30,420 pounds was taken from the range. Lead wipe samples were not collected from this space.

d. A survey of the Pots and Pans and the Kitchen area found the lighting poor. These areas are utilized once a month by the Mess platoon. Illumination levels were surveyed at several workstations in these two areas. Readings were measured in foot candles (FC). 3 compartment sink's average reading is 3.69 FC; Pots and pans rack 5.55 FC; Prep table in kitchen 19.9 FC; Stove 18.4 FC; Serving line 15.7 FC. The lighting is below the standards set forth in TB Med 530. The exhaust fan was not functioning in the Pots and Pans area.

e. The Drill Hall is used primarily for drills and occasional community functions. Through visual examination and interview with personnel there is no apparent vehicle maintenance being performed in this area.

f. A new solvent tank was found stored in the Maintenance tent. The recirculating tank holds approximately 55 gallons of solvent. The solvent tank has not been placed into operation.

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Phone: (410) 551-2717

SUBJECT: Industrial Hygiene Survey of Greenville National Guard Armory, Greenville, North Carolina

6. Recommendations.

a. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. All personnel employed by the Armory should have knowledge of the location of the MSDS book. A need for Hazard Communication Training for other full time National Guard personnel should be addressed with the North Carolina Occupational Safety and Health office.

b. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice washing hands thoroughly after handling weapons and ammunition.

c. The Converted Indoor Firing Range poses no health threat. The Pit and Backstop was removed during the reconstruction of the Armory. 5-6 feet of water was throughout the building after the hurricane.

d. Per TB MED 530, Permanently fixed, artificial light sources shall be installed to provide at least 50 foot candles of light on all food preparation surfaces and at equipment or utensil washing work levels, 30 foot candles of light at a distance of 30 inches from the floor throughout food preparation, serving, and ware washing areas and at least 20 foot candles of light in utensil and food storage areas. The exhaust rate for ventilation systems serving dishwashers, griddles, stoves, deep fat fryers and other such equipment shall be adequate to provide for the capture of grease and moisture. Exhaust rates in existing facilities shall be no less than 100 feet per minute. Recommend contacting the North Carolina Engineering Office for technical assistance in both these matters.

e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Phone: (410) 551-2717



SUBJECT: Industrial Hygiene Survey of Greenville National Guard Armory, Greenville, North Carolina

f. The use of solvent tanks poses a possible health and safety threats if the operation is not properly performed. The type of solvent, the location of the tank, and the purchase of appropriate Personal Protective Equipment (PPE) must be taken into consideration when operating a solvent tank. Use a solvent with a low toxicity or low volatility. Recommend using the tank outside and away from direct sunlight; post "NO Smoking" signs; ensure the lid remains closed when not in use. Discourage the use of military NBC, surgical and /or Playtex type gloves while performing dipping operations, they do not provide the needed chemical protection. Instead, purchase gloves, aprons, and/or face shields that offer the best chemical resistance to the solvent. The North Carolina safety Office can provide assistance with the selection process.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

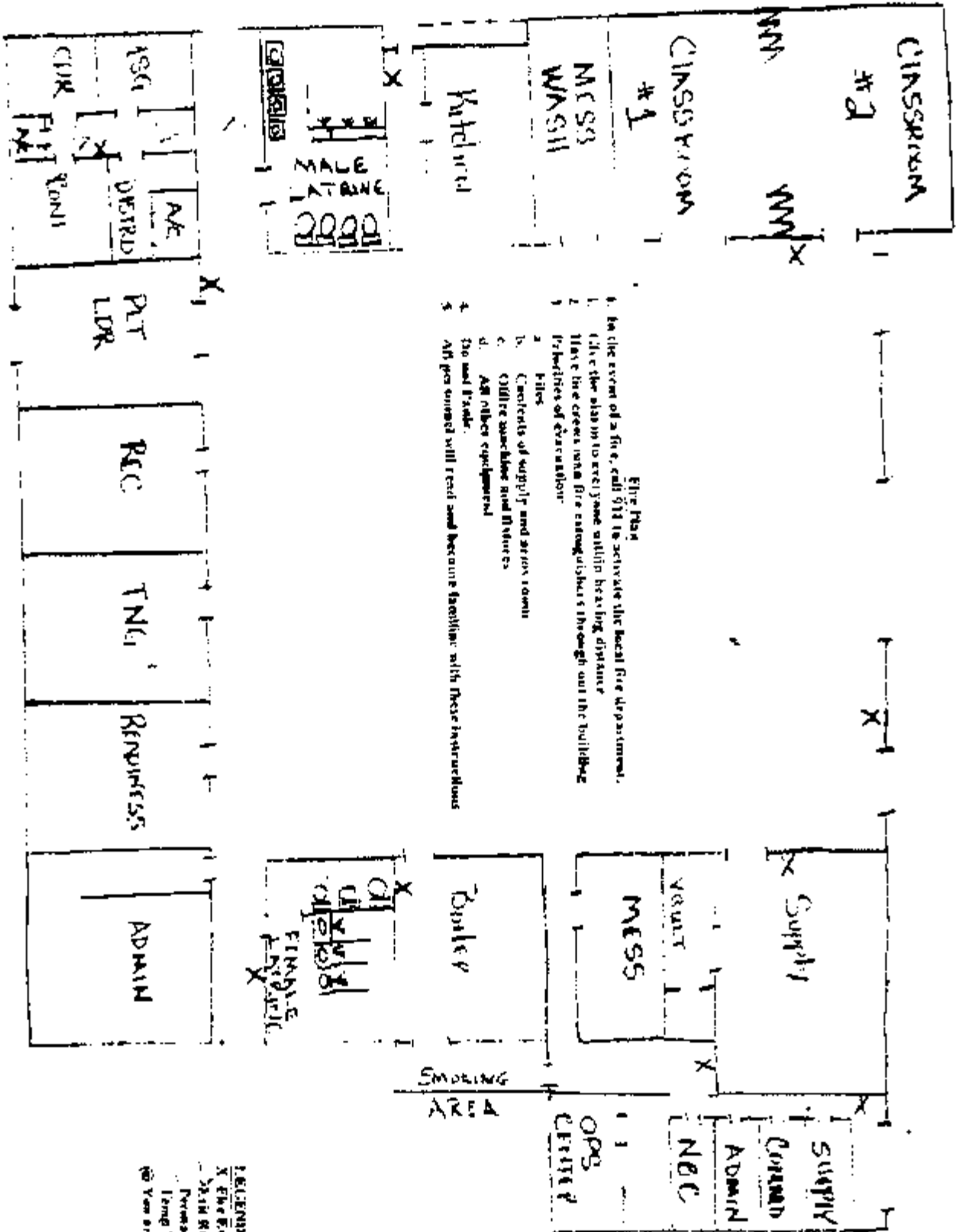
**Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

# Greenville Training



# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

ARLOC	INSTALLATION Greenville North Carolina, National Guard Armory	BLDG/RM NO. 1401 N. Memorial Dr
LOCATION/CODE AA - Administrative	OPERATION/CODE ADO	
SURVEY DATE 20 May 02	EVALUATOR (Initials) Non-Responsive	
MACOM/CODE	SUBMACOM/CODE	SUPERVISOR Non-Responsive
TELEPHONE/DSN NO. Non-Responsive	UNIT/ORGANIZATION 514th MP Company	RAC 4
NO. CIV(S)	NO. MIL 4	NO. CONTRACTOR(S)
NO. LOC(S)	NO. OTHER	FREQUENCY (hrs/day) 8 hrs

## SECTION 2. FACILITY DATA

LAB HOODS	VAPOR DEGREASERS	SPRAY BOOTHS
MAINTENANCE BAYS	OPEN SURFACE TANKS 1	VENTILATION UNITS 6 mv

## SECTION 3. SURVEY DATA

CONTROLS PRESENT	EVALUATION	UNIT CODE	CONTROLS REQUIRED	STATUS
None				

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

GLOVES	R/U	RESPIRATOR	NIOSH TC NO.	MANUFACTURER	R/U
ACID	/	AIRLINE			/
COLD SURFACES	/	ABRASIVE BLASTING HOOD			/
HOT SURFACES	/	DISPOSABLE			/
NBC AGENTS	/	FULL FACE AIR PURIFYING			/
OIL	/	1/2 FACE AIR PURIFYING			/
SOLVENTS	X /	POWERED AIR PURIFYING			/
SURGICAL GLOVES	/	1/4 FACE AIR PURIFYING			/
		SELF CONTAINED			/

EYES/FACE	R/U	HEARING	R/U	BODY	R/U	HEAD/FIT	R/U
CHEMICAL SPLASH	/	CANAL CAPS	/	APRONS	X /	COLD WEATHER BOOTS/HATS	/
FULL FACE SHIELD	/	EARPLUGS	/	COLD WEATHER CLOTHING	/	HARD HATS	/
CHEMICAL/SAFETY	X /	HELMETS	/	COVERALLS	/	IMPERMEABLE BOOTS	/
SAFETY/IMPACT	/	MUFFS	/	FULL BODY SUIT	/	SAFETY/CONDUCTIVE SHOES	/
WELDING HELMET	/	MUFF/EARPLUG COMBO	/	HEAT REFLECTIVE VEST/SUIT	/	SAFETY/NON-CONDUCTIVE SHOES	/
		MUFF/EARPLUG W/TIME LIMIT	/	SAFETY BELT/HARNES	/		/

FULLTIME PERSONNEL – GREENVILLE ARMORY

**Non-Responsive**

95B mp  
79T Recruiter/Reh m  
92Y Supply  
19K Scout



514th MP Co. Greenville Armory





Exterior and Interior Views of Hazmat Storage Building  
Greenville, NC







Views of Converted Indoor Firing Range





Maintenance Tent at Greenville, NC Armory



Solvent Tank located in Maintenance Tent

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

October 23, 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company B,  
Detachment 1, 105<sup>th</sup> Engineer Battalion, ATTN: SSG [REDACTED] 219 Boyd Lake,  
Hamlet, North Carolina, 28345-9374.

SUBJECT: Industrial Hygiene Survey of the Hamlet National Guard Armory, Hamlet,  
North Carolina.

1. References.

- a. Report submitted 22 September 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. Ms. [REDACTED] of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

September 22, 2001

MEMORANDUM FOR: Company B, Detachment 1, 105th Engineer Battalion ATTN:  
SSG **Non-Responsive** 219 Boyd Lake, Hamlet, North Carolina, 28345-9374

SUBJECT: Industrial Hygiene Survey of Hamlet National Guard Armory, Hamlet, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Hamlet NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Laboratory results of Lead wipe sample at Enclosure 2. Photographs of the facility can be found in Enclosure 3. Health Hazard Inventories can be found in Enclosure 4. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 5.

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SUBJECT: Industrial Hygiene Survey of Hamlet National Guard Armory,  
Hamlet, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Lumberton National Guard Armory in Hamlet, North Carolina on 22 August 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the B Co, Detachment 1, 105<sup>th</sup> Engineer Battalion. The Armory has one full time soldier. The personnel perform administrative duties Monday through Friday between 0800 and 1600. The Armory is utilized for drills on the weekend. The building was constructed in 1952. The facility houses six administrative areas, one kitchen/mess hall, three classroom, a Drill hall, Supply Room, and Arms Room and a converted indoor firing range.

5. Findings.

a. A Deactivated Indoor Firing Range has been converted into a Storage area, Weight room, and Reference Library. Walls were constructed to divide this space into three separate areas. Dry wall is taped and finished. Walls are not painted. A drop ceiling was installed. A wall was constructed in front of the former range Pit. The range pit backstop is exposed. The pit area is currently used as a reference library /storage area. Walls were constructed in the middle of the range. This area is utilized as a weight room. The space at the rear of the range near the overhead-rolling door is used as storage for lawn equipment. Currently a riding lawn mower is in this area. The range had possibly two lanes. The range is visually clean. There are no residual Ammunition odors. The backstop was repainted but paint is scraped exposing underlying paint. The range's two Exhaust systems are operational but not viewable because of the drop ceiling. The Range was deactivated and cleared, June 21, 1996. Eighteen bags of sand weighing approximately 36,504lbs. were removed. Five wipe samples were taken (Table 1). Three of the five samples were above the clearance level of 200-mg/ftsq indicated in reference g (enclosure 3 and 6).

TABLE 1

Sample Number	Sample Location	Results
128	Left Side of Backstop 7 Ft from Pit Floor	1721.80 mg/ sg ft
129	Right Side of Backstop 2 Ft from Pit Floor	6514.61 mg/sg ft
130	Front of Pit Floor	158.02 mg/sg ft
131	Rear of concrete Pit Floor near Backstop	1693.31 mg/sg ft
132	Outside of Entrance into Range (Floor)	37.58 mg/sg ft

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Hamlet National Guard Armory,  
Hamlet, North Carolina

b. Material Safety Data Sheets (MSDS) were on file and readily available on chemicals that are in use by this Armory. A chemical inventory was not available. The Readiness NCO is in the process of updating the MSDSs. The Readiness NCO has not received Hazard Communication Program Training. The Readiness NCO has attended an annual Environmental Facility Coordinator Training Course.

c. The Supply room houses an Arms room, Nuclear, Biological, Chemical equipment storage, and TA 50/ CIF area. The areas were visually surveyed and personnel interviewed. RADAC meters/ alarms and Chemical detector units and other items with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was not posted on the entrances to these areas. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. The humidifier was operating.

d. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area. The drill hall floor is concrete and in good repair. Water is leaking into the Drill Hall from around the Windows and around the Hall's Exhaust Fan.

e. Extensive foundation and brick damage was noticed at the rear of the Armory near the rolling door of the range.

f. Water damage was found on the walls and ceiling of the classrooms. Water may be seeping from where the flat roof of the classroom meets the wall of building.

LAB Consulting  
1218 Scattered Plots Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Hamlet National Guard Armory,  
Hamlet, North Carolina

6. Recommendations.

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200-mg/sg ft (reference g.), consider performing addition lead wipe sampling. A memorandum addressed from the State Crime Control and Public Safety office dated 16 April 1997 ask that this Armory and five others perform self help painting of the Deactivated Indoor Range. The memo also addresses that the range is virtually free of any Lead contamination (Enclosure 7). Recommend contacting the North Carolina Occupational Safety and Health office prior to performing any future, self-help projects in this area.

b. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. A need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

c. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office. Ensure that dehumidifier is left on to prevent weapons from rusting

d. Contact the North Carolina Engineering/Facility office for assistance in repairing all water leaks and documenting and/or repairing the foundation of this facility.

e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

L&E Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Hamlet National Guard Armory,  
Hamlet, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

6 Encl.

1. Building Diagram
2. Laboratory Lead Wipe Results
3. Facility Photographs
4. HHIM
5. Excerpt NG Pam 385-16
6. Self Help Memo

**Non-Responsive**  
LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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—

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# CERTIFICATE OF ANALYSIS

**Client:** LAE Consulting **Job Name:** Hamlet, NC National Guard Armory **Chain Of Custody:** 84604  
**Address:** 1218 Scattered Pine Court **Job Location:** Not Provided **Date Analyzed:** 9/6/01  
 Severn, Maryland 21144 **Job Number:** 07 **Person Submitting:** [REDACTED]  
**P.O. Number:** Not Provided **Report Date:** 06-Sep-01

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 |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|----------------|----------|
| 0172612           | 128                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 1721.80 ug/ft² |          |
| 0172613           | 129                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 6514.61 ug/ft² |          |
| 0172614           | 130                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 158.02 ug/ft²  |          |
| 0172615           | 131                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 1693.31 ug/ft² |          |
| 0172616           | 132                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 37.58 ug/ft²   |          |

Analysis Method for Flame (Wipes, Paints, Ais and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

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Detachment 1 Company B 105th Engineer Battalion  
Hamlet, North Carolina National Guard Armory

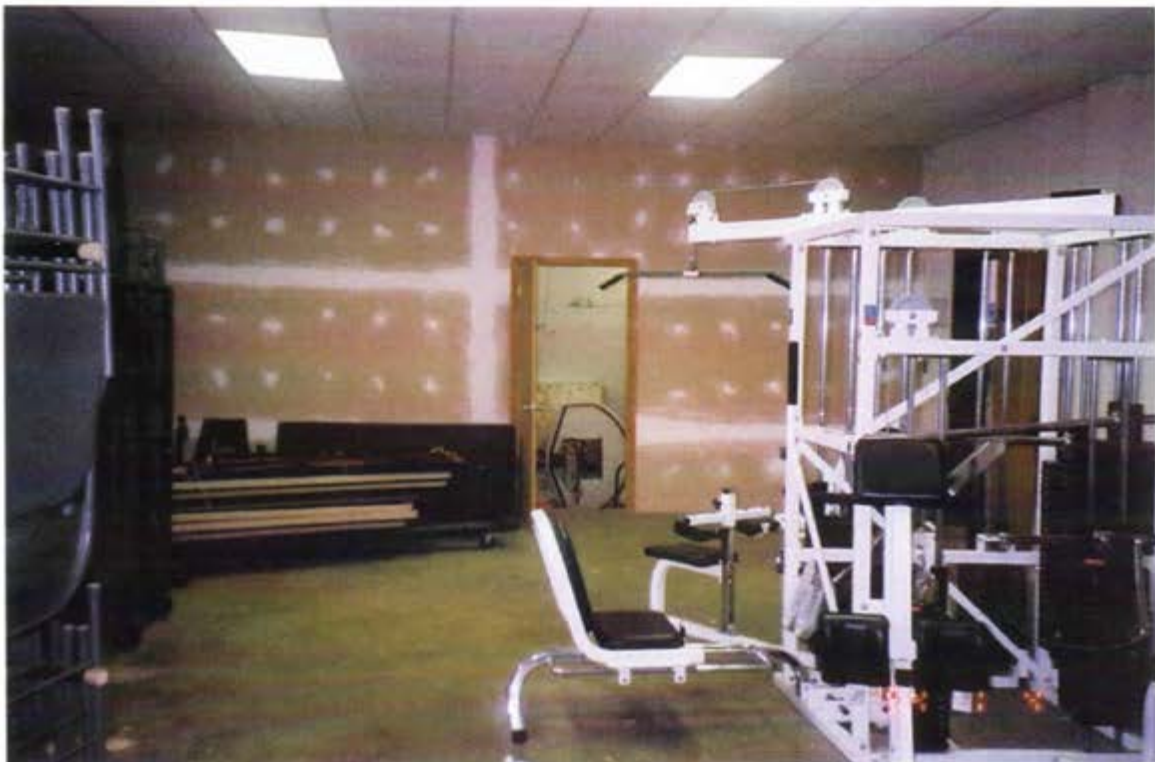


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Views Down Range of Deactivated/Converted Indoor Firing  
at Hamlet NC, NG Armory



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Views of Current Reference Library and Storage Area,  
Former Range Pit and Backstop



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Views of Water Damage on Walls In the Drill Hall of  
Hamlet NC, NG Armory



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**Views Exterior Foundation  
and Brick Water Damage**



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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |   |                                  |
|-------------------------------------|---|----------------------------------|
| ARLOC                               | INSTALLATION<br>Hamlet N.G. Armory                  | BLDG/RM NO.<br>219 Boyd Lake Rd  |
| LOCATION/CODE<br>AA Administrative  | OPERATION/CODE<br>Administrative Operation          |                                  |
| SURVEY DATE<br>22 aug 01            | EVALUATOR (Initials)<br>LAE Consulting              |                                  |
| MACOM/CODE<br>N 6                   | SUBMACOM/CODE                                       | SUPERVISOR<br>SSG Non-Responsive |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>DET 1 COB<br>105th ENGINEER BN | RAC<br>4                         |
|                                     |   | FREQUENCY (hrs/day)<br>8-10      |
| NO. CIV(S)                          | NO. MIL<br>1  | NO. CONTRACTOR(S)                |
|                                     |   | NO. LOC(S)                       |
|                                     |   | NO. OTHER                        |

## SECTION 2. FACILITY DATA

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| LAB HOODS<br>0        | VAPOR DEGREASERS<br>0   | SPRAY BOOTHS<br>0      |
| MAINTENANCE BAYS<br>0 | OPEN SURFACE TANKS<br>0 | VENTILATION UNITS<br>0 |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE  | HAZARD DESCRIPTION           | PAC | EPC |
|-----------|------------------------------|-----|-----|
| 7439-92-1 | LEAD, INORGANIC, DUST, FIRES | 1   |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |
|           |                              |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME      | FIRST NAME | MI | SEX | SSN            | CATEGORY  |
|----------------|------------|----|-----|----------------|-----------|
| Non-Responsive |            |    | M   | Non-Responsive | N6 Active |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |
|                |            |    |     |                |           |

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

## Safety

# GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

## CONTENTS (Listed by paragraph numbers)

|  | Para |
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## Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

## Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

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# APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

**B-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.

**B-2 BETWEEN 201 and 200,000 micrograms/sq ft**  
Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

**B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

**B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.**

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

# APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

**C-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. The paint color must contrast the color of the present substratum.

**C-2 ABOVE 200 micrograms/sq ft**  
As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not



RESTRICTED RANGE

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STATE OF NORTH CAROLINA  
DEPARTMENT OF CRIME CONTROL AND PUBLIC SAFETY  
OFFICE OF THE ADJUTANT GENERAL  
NORTH CAROLINA NATIONAL GUARD



JAMES B. HUNT, JR.  
GOVERNOR

RICHARD H. MOORE  
SECRETARY

GERALD A. RUDISILL, JR.  
MAJOR GENERAL, NCARNG  
ADJUTANT GENERAL

OTAGNC-AGEO

16 APRIL 1997

MEMORANDUM FOR Benson, Beuleville, Edenton, Elizabethtown, ~~Hamlet~~, Wallace,  
Youngsville Armories

SUBJECT: Self Help Project to Complete Lead Cleaning of Indoor Ranges

1. The Environmental Section has informed me that the indoor ranges at seven armories are virtually free of any lead contamination (encl. 1). Your armory is on the list.
2. Only one task remains before your range can be declared ready for use: the interior walls of the ranges must be painted with one coat of lead free latex paint to seal any remaining lead residue. All surface areas must be covered, floor to ceiling.
3. You may speed up this process by volunteering to paint the walls with your own manpower. AGEO will provide the paint; you simply need to submit a request for materials to ~~Non-Responsive~~ in Purchasing. You must use a color that contrasts with the former wall color to insure that every part of the wall is sufficiently covered.
4. Once the project is complete, AGEO will permit the range to be used for storage or other pressing needs. Do not install wooden partitions and other flammable wall assemblies to create separate rooms. Interior modifications may only be allowed if the design is cleared by AGEO and confirmed to meet all building codes.
5. Contact me at ~~Non-Responsive~~ if you have any questions.

Encl :

**Non-Responsive**

MAJ, EN, NCARNG  
Assistant Construction and  
Facilities Management Officer

4103 REEDY CREEK ROAD, RALEIGH, NC 27607-6410, TELEPHONE (919) 664-6000, DSN 582-9210  
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**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 07, 2001

MEMORANDUM FOR The North Carolina Army National Guard, B Company (-) 105<sup>th</sup>  
Engineer Battalion, ATTN: SFC [REDACTED] 1520 South Main Street, Laurinburg,  
North Carolina 28352-5036.

SUBJECT: Industrial Hygiene Survey of the Laurinburg National Guard Armory,  
Laurinburg, North Carolina.

1. References.

- a. Report submitted 24 November 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. Ms. [REDACTED] of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

November 24, 2001

MEMORANDUM FOR: B Co (-) 105th Engineer Battalion, ATTN: SFC Non-Responsive  
1520 South Main Street, Laurinburg, North Carolina, 28352-5036

SUBJECT: Industrial Hygiene Survey of Laurinburg National Guard Armory,  
Laurinburg, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

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**SUBJECT:** Industrial Hygiene Survey of Laurinburg National Guard Armory, Laurinburg, North Carolina

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Laurinburg NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Laurinburg National Guard Armory in Laurinburg, North Carolina on 15 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses B Co (-) 105<sup>th</sup> Engineer Battalion. The Armory has two full time National Guard personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000 hours. Soldiers may perform within their Military Occupational Specialty (MOS) during Drill weekend. The MOS's are Combat Engineers (12B) and Supply/Armor (92Y). The Armory is utilized for drills on the weekend. The armory was built around 1956. The facility houses seven administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage, an Arms Room and a converted indoor firing range.

#### 5. Findings.

a. A deactivated Indoor Firing Range (Enclosure 2, 4) was converted into a large storage area. Tables and chairs are stored in this area. Metal wall lockers, used to store the soldiers personal/TA 50 type items are located in the former pit. An overhung garage door is located at the rear of the area. An entrance is also located off the Drill Hall. The range was decontaminated and cleared June 25 1996. Ten bags of sand weighing approximately 20,280 pounds were removed. Six wipe samples for lead were taken (Table 1). Four of the six samples were above the clearance level of 200-mg/ftsq indicted in reference g (enclosure 3 and 6).

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**SUBJECT: Industrial Hygiene Survey of Laurinburg National Guard Armory,  
Laurinburg, North Carolina**

**TABLE 1.**

| <b>Sample Number</b> | <b>Sample Locations</b>                     | <b>Results</b>             |
|----------------------|---|----------------------------|
| 140                  | Right Side of Backstop 6 Ft from Pit Floor  | 367.03 mg/ft <sup>2</sup>  |
| 141                  | Middle Side of Backstop 4 Ft from Pit Floor | 1345.56 mg/ft <sup>2</sup> |
| 142                  | Left Side of Backstop 2 Ft from Pit Floor   | 217.45 mg/ft <sup>2</sup>  |
| 143                  | Pit Floor (Concrete) near Backstop          | 1555.81 mg/ft <sup>2</sup> |
| 144                  | Pit Floor, near Front                       | 76.29 mg/ft <sup>2</sup>   |
| 145                  | Drill Hall side Entrance to Range Floor     | <20.00mg/ft <sup>2</sup>   |

b. Material Safety Data Sheets (MSDS) were not found for the chemicals utilized by the Armory. A chemical inventory is not developed. Armory personnel have not been trained in Hazard Communication. Personnel have been trained in DOT Hazardous Materials Training. Hazardous Wastes are disposed of through Organizational Maintenance Site #10.

c. The Supply room houses an Arms room, Nuclear, Biological, and Chemical (NBC) Equipment and TA 50/ CIF area and Communications (Commo). The areas were visually surveyed and personnel interviewed. Signage stating "Warning Radioactive Hazard" was not posted on the entrances to the NBC room. The NBC room Stores M8A1, Chemical Alarms and IM93 Radiac Meters. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

d. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area. The Drill Hall floor is concrete. The Drill Hall and Armory building was retroofed 7-8 years ago.

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SUBJECT: Industrial Hygiene Survey of Laurinburg National Guard Armory,  
Laurinburg, North Carolina

e. Petroleum, Oil and Lubricants (POLs) are stored in three separate areas located outside the Armory. A white building stores waste Brake Free, lubricant used on weapons. Two tin lined, deteriorated wood exterior containers store new and used POLs, and lawn maintenance equipment. "No Smoking" signs were not posted near or at any of the three buildings. Fire extinguishers were not available near the buildings/containers.

f. A solvent tank is being utilized to clean weapons and weapon parts. The tank has mechanical agitation. Brake Free is used as the solvent for cleaning and lubricating weapons. NBC gloves are used for personal protection.

#### 6. Recommendations.

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/sqft (reference g.), consider performing addition lead wipe sampling.

b. Conduct a Hazardous Chemicals inventory and obtain MSDS for chemicals utilized in the facility. Ensure that the storage location of the chemical is included on the inventory. Dispose of chemicals that are no longer in use or expired through OMS#10. Maintain chemical inventory with MSDS sheets. Ensure the MSDS book and chemical inventory is available and/or accessible to all Armory personnel. A need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

c. The M8A1 Automatic Chemical Agent Alarm System, is a chemical detection alarm. The IM93 is a tactical dosimeter used to detect nuclear/radiological agents. The alarms and dosimeter are licensed by the National Regulatory Commission and contain a radioactive source. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the United States Property Facility office (USPFONC) in North Carolina. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

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**SUBJECT: Industrial Hygiene Survey of Laurinburg National Guard Armory,  
Laurinburg, North Carolina**

e. Consider purchasing a container suitable for the storage of flammable hazardous waste/materials. Container should have a leak proof containment area that can hold at least one and half times the capacity of the fluids/materials that are stored. Fire extinguishers and "Flammable No Smoking" signs need to be placed at the current POL storage containers. Recommend conducting a chemical inventory of all chemicals stored in all three locations. Ensure the location of each item is annotated on the inventory. Obtain MSDS for the materials from OMS # 10 or contact the North Carolina Occupational Safety and Health office for assistance. MSDS should be maintained in a location, which is accessible to all personnel who work at the Armory.

f. The use of solvent tanks poses a possible health and safety threats if the operation is not properly performed. The type of solvent, the location of the tank, and the purchase of appropriate Personal Protective Equipment (PPE) must be taken into consideration when operating a solvent tank. Use a solvent with a low toxicity or low volatility. Recommend using the tank outside and away from direct sunlight; post "NO Smoking" signs; ensure the lid remains closed when not in use. Discourage the use of military NBC, surgical and /or Playtex type gloves while performing dipping operations, they do not provide the needed chemical protection. Instead, purchase gloves, aprons, and/or face shields that offer the best chemical resistance to the solvent. The North Carolina safety Office can provide assistance with the selection process.

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SUBJECT: Industrial Hygiene Survey of Laurinburg National Guard Armory,  
Laurinburg, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

6 Encl

1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

**Non-Responsive**

LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

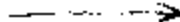
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Landingburg Klachel Road Army.  
Deactivated Indoor Fire Range



12 FT



61 FT

18' 4"  
12'

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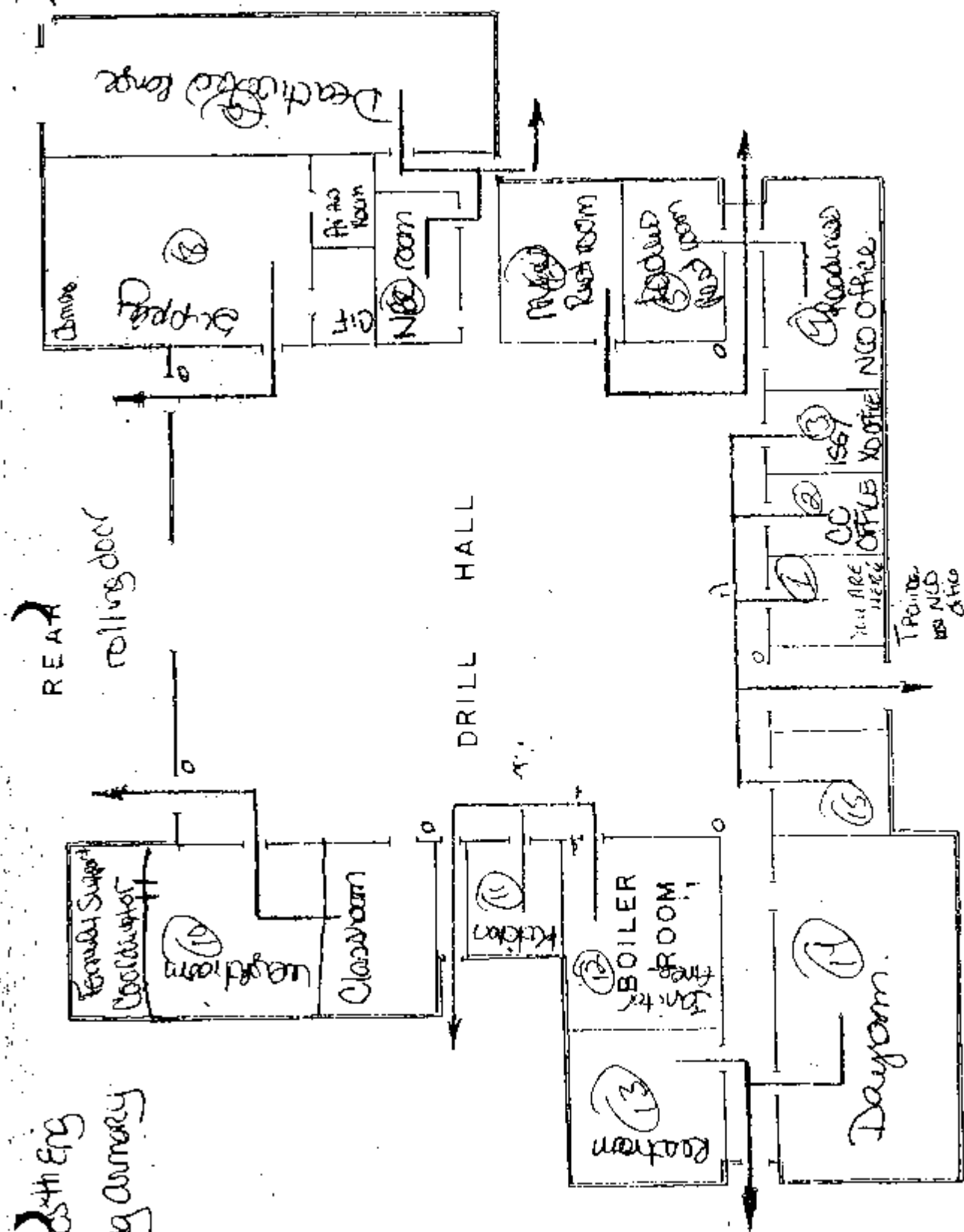


2006-10-24  
Laurinburg Armory

Posted to NGB FOIA Reading Room  
May, 2018

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FOIA Requested Record #J-15-0085 (NC)  
Released by National Guard Bureau  
Page 300 of 857



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# CERTIFICATE OF ANALYSIS

**Client:** LAE Consulting  
**Address:** 1218 Scattered Pine Court  
Severn, Maryland 21144

**Job Name:** Lauringberg National Guard Armory

**Job Location:** Not Provided

**Job Number:** Not Provided

**P.O. Number:** Not Provided

**Chain Of Custody:** 88401

**Date Analyzed:** 11/12/2001

**Person Submitting:** [Redacted]

**Report Date:** 12-Nov-01

**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 |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|----------------|----------|
| 0210771           | 140                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 217.45 ug/ft²  |          |
| 0210772           | 141                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 1345.56 ug/ft² |          |
| 0210773           | 142                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 367.03 ug/ft²  |          |
| 0210774           | 143                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 1555.81 ug/ft² |          |
| 0210775           | 144                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 76.29 ug/ft²   |          |
| 0210776           | 145                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | < 20.00 ug/ft² |          |

Analysis Method for Flame (Wipes, Paints, Airt and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

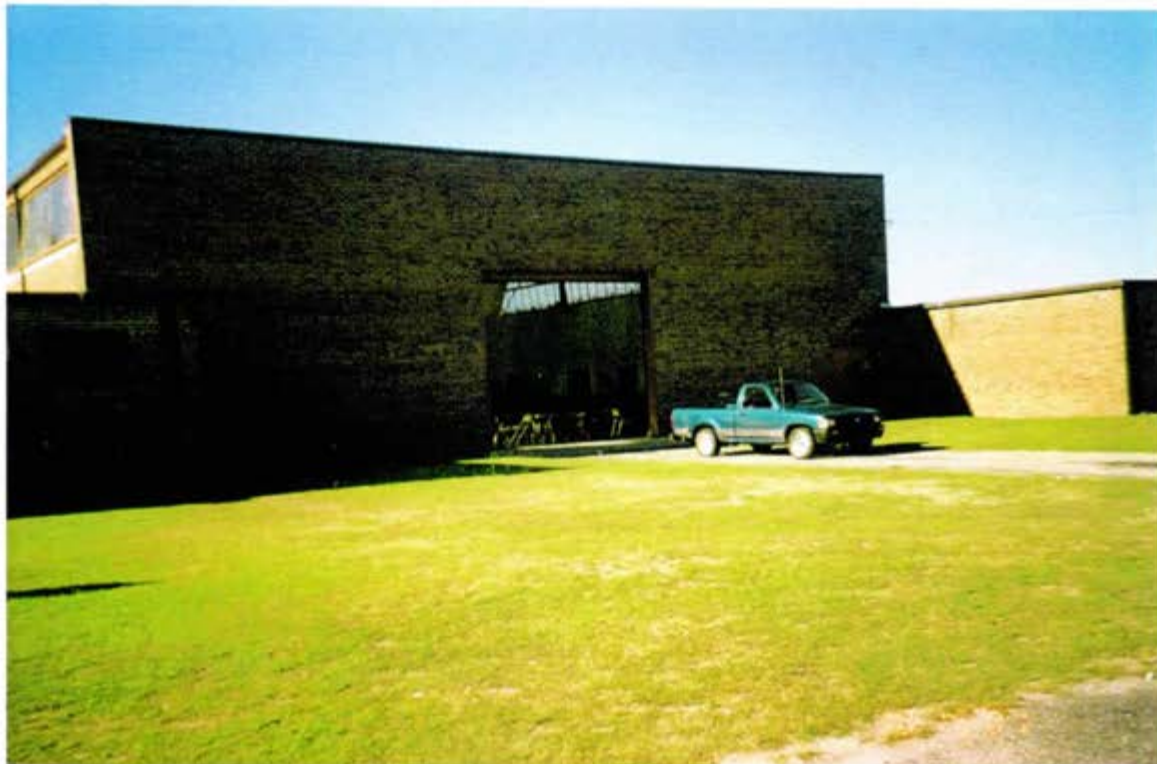
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*B Co (-) 105th Engineer Battalion  
Laurinburg National Guard Armory, North Carolina*



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View of TOE, excess equipment  
and Hazardous Waste Storage building



Inside view of Storage Building

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Interior views of Tin and Cinder block building  
used to store POLs  
and, Hazardous waste



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Containers of waste Brake Free  
Stored inside of Storage Building



Storage Area located outside of Storage Building

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**Downrange view of  
Converted Indoor Firing Range**



**View Uprange of Converted Indoor Firing Range**

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HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

### Safety

## GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. DODI 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).

## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**



# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|  |   |  |
|--|---|--|
| ARLOC                                      | INSTALLATION<br><i>Laurinburg N.G. Armory</i>     | BLDG/RM NO.<br><i>1520S. Main</i>              |
| LOCATION/CODE<br><i>AA</i>                 | OPERATION/CODE<br><i>Admin</i>                    |  |
| SURVEY DATE<br><i>15 OCT 01</i>            | EVALUATOR (Initials)<br><i>Non-Responsive</i>     |  |
| MACOM/CODE<br><i>NG</i>                    | SUBMACOM/CODE                                     | SUPERVISOR<br><i>SFL</i> <i>Non-Responsive</i> |
| TELEPHONE/DSN NO.<br><i>Non-Responsive</i> | UNIT/ORGANIZATION<br><i>105th Eng BN, BCo (-)</i> | RAC  |
| NO. CIV(S)                                 | NO. MIL   | NO. CONTRACTOR(S)                              |
|  |   | NO. LOC(S)                                     |
|  |   | NO. OTHER                                      |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE  | HAZARD DESCRIPTION        | PAC | EPC |
|-----------|---------------------------|-----|-----|
| COLUBECOL | Hydraulic Fluid           |     |     |
| COLUBECOL | Oil, Lube 1 QT containers |     |     |
| COLUBECOL | Lube Oil 5 GAL            |     |     |
| 8006-61-9 | GASOLINE                  |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |
|           |                           |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME      | FIRST NAME     | MI | SEX | SSN            | CATEGORY |
|----------------|----------------|----|-----|----------------|----------|
| Non-Responsive | Non-Responsive |    |     | Non-Responsive |          |
| 12840          |                | F  | M   |                | AGB      |
| 92430          |                | W  | M   |                | AGB      |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |
|                |                |    |     |                |          |

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

15 August 2001

MEMORANDUM FOR The North Carolina Army National Guard, ATTN: SFC [REDACTED]  
[REDACTED] B Company, 4502 Fayetteville Road, Lumberton, North Carolina, 28358-2671.

SUBJECT: Industrial Hygiene Survey of the Lumberton National Guard Armory,  
Lumberton, North Carolina.

1. References.

- a. Report submitted 5 August 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. Ms. [REDACTED] of LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

August 10, 2001

MEMORANDUM FOR: Company B 1/120 Infantry, ATTN: SFC [REDACTED] B CO  
4502 Fayetteville Road, Lumberton, North Carolina, 28358-2671

SUBJECT: Industrial Hygiene Survey of Lumberton National Guard Armory,  
Lumberton, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Lumberton NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe sample at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.

**SUBJECT:** Industrial Hygiene Survey of Lumberton National Guard Armory,  
Lumberton, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Lumberton National Guard Armory in Lumberton, North Carolina on 27 June 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the B Co 1/120 Infantry. The Armory has four full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000. The Armory is utilized for drills on the weekend. The building is approximately 20 years old. The facility houses five administrative areas, one kitchen/mess hall, two classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room and a converted indoor firing range.

5. Findings.

a. A storage and vehicle maintenance area is located within a deactivated Indoor Firing Range (Enclosure 2). Tents and camouflage nets are stored in what was the range pit. A large wood and wire screened cubicle houses an office, maintenance tools, and vehicle parts. This space is utilized by the Maintenance Platoon during Drills. Personnel stated that vehicle maintenance is also performed in this area. The area is not connected to any ventilation systems. An overhung garage door is located at the rear of the area providing access for vehicle repair and ventilation. An entrance is also located off the Drill Hall. The range was decontaminated and cleared December 7, 1995. Eleven bags of sand weighing approximately 22,308 pounds were removed. Seven wipe samples for lead were taken (Table 1). Six of the seven samples were above the clearance level of 200 mg/ft sq indicted in reference g (enclosure 3 and 6).

TABLE 1

| Sample Location  | Results             |
|--|---------------------|
| Left Wall Cinder block near range pit                        | 453.13 mg/ft sq     |
| Right Wall Cinder block near range pit                       | 833.26 mg/ ft sq    |
| Floor of range pit (concrete)                                | 11,849.85 mg/ft sq  |
| Bullet stop (left side)                                      | 47,098.09 mg/ ft sq |
| Bullet stop (middle)   | 21,173.28 mg/ft sq  |
| Bullet stop ( right side)                                    | 145.44 mg/ft sq     |
| Target holder 2 <sup>nd</sup> from the left (1 ft up holder) | 744.20 mg/ ft sq    |

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

**SUBJECT: Industrial Hygiene Survey of Lumberton National Guard Armory,  
Lumberton, North Carolina**

b. Material Safety Data Sheets (MSDS) were on file and readily available on chemicals that are and are not in use by this Armory. The Readiness NCO is in the process of updating the MSDSs. Personnel have not received Hazard Communication Program Training.

c. The Supply room houses an Arms room, Night Vision equipment storage room, Communication equipment storage room and TA 50/ CIF area. The areas were visually surveyed and personnel interviewed. RADAC meters/ alarms and Chemical detector units and other items with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was not posted on the entrances to these areas. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. Personnel stated very little if any organization communication repair has been conducted in the Communication Equipment storage room. Supply ventilation is provided through the partition from the TA 50/ CIF room.

d. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area.

e. Petroleum, Oil and Lubricants (POLs) are stored in a room located outside near the rear exit of the Drill Hall. This room shares an adjacent wall with the supply room.

LA Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 3

**SUBJECT: Industrial Hygiene Survey of Lumberton National Guard Armory,  
Lumberton, North Carolina**

**6. Recommendations.**

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/sg ft (reference g.), consider performing addition lead wipe sampling. Consider discontinuing the use of this area as a maintenance bay until further evaluation of the facilities ventilation system is performed. Contact the North Carolina Occupational Safety and Health office for technical assistance.

b. Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

c. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office. **NOTE:** Soldering is an operation that is usually performed in a Communication repair shop/area. If this facility considers performing, soldering operations contact the North Carolina Occupational Safety and Health Office for technical assistance in ventilation requirements.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

e. An inventory of the chemicals in the POL storage room should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

LAE Consulting  
1216 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 4



SUBJECT: Industrial Hygiene Survey of Lumberton National Guard Armory,  
Lumberton, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**Non-Responsive**

LAE Consulting

6 Encl.

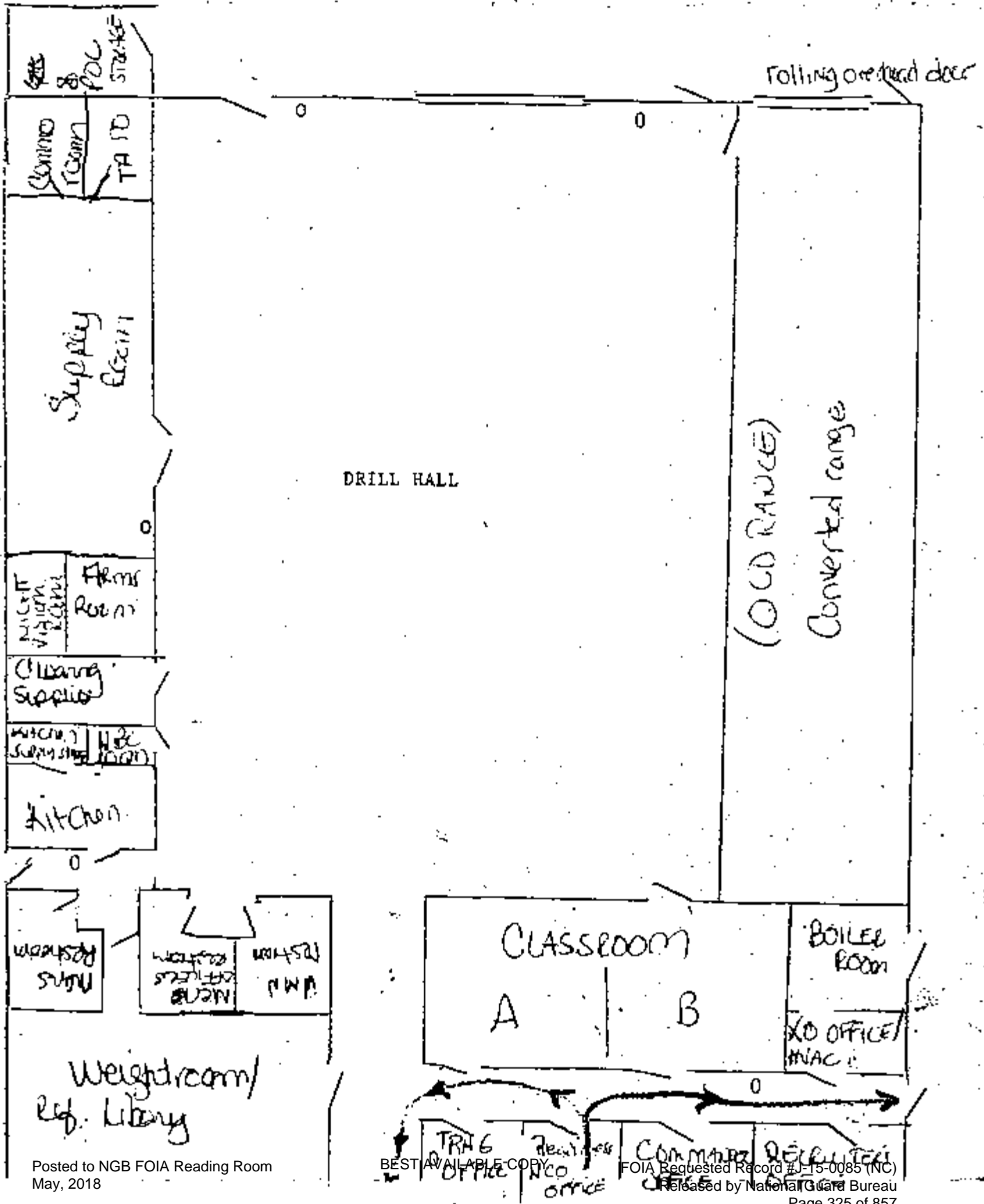
1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

# FIRE EVACUATION PLAN FOR THE LUMBERTON NG ARMORY

0- FIRE-EXTINGUISHER



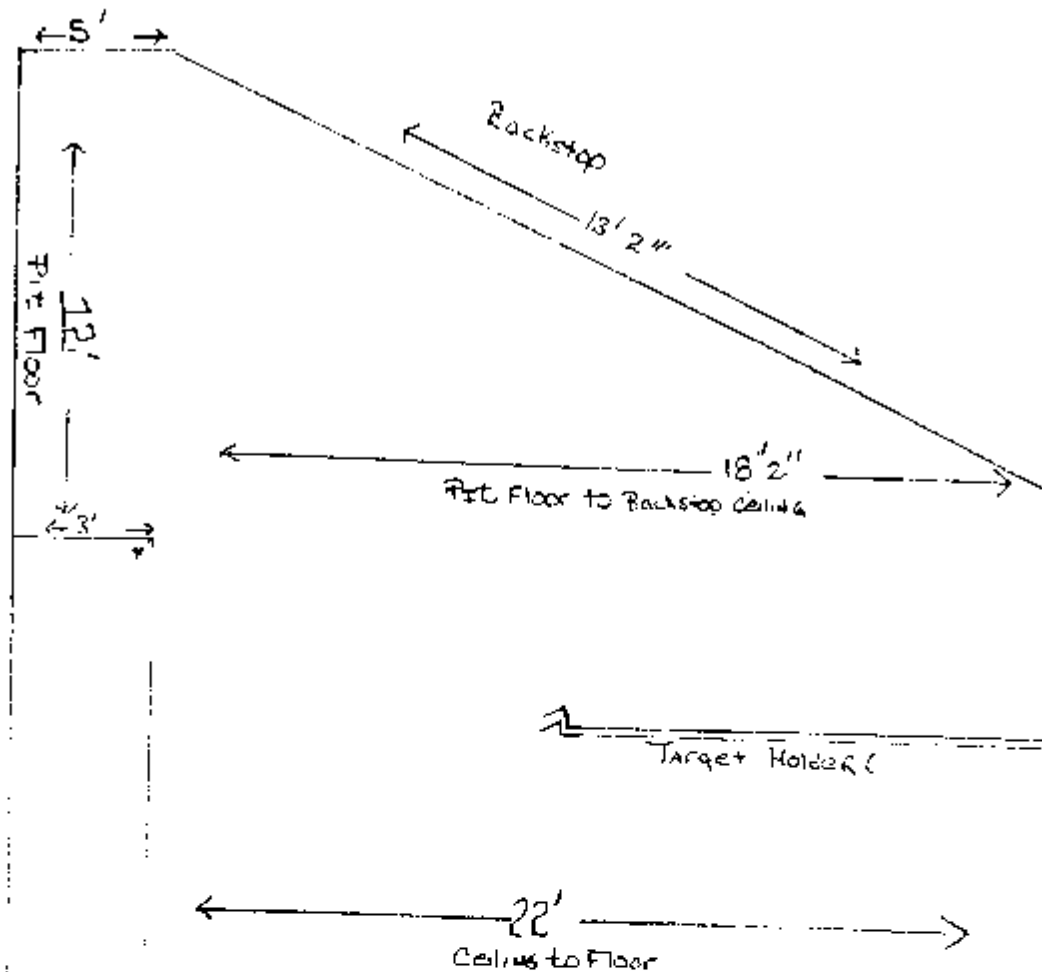
OTHER DIMENSIONS

- WIDTH OF PIT - 20 FT
- WIDTH OF RANGE (MEASURED) - 17 1/2

Lumberston Deactivated Indoor Range  
Lumberston National Guard Armory

Acoustic Ceiling

BEST AVAILABLE COPY



78' Length of range from front edge of pit to range door

**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting  
**Address:** 1218 Scattered Pine Court  
Severn, Maryland 21144  
**Attention:** [REDACTED]  
**Job Name:** N.6 Armstrong/BCO 1/120 Infantry Armory, Lumberton  
**Job Location:** North Carolina  
**Job Number:** Not Provided  
**P.O. Number:** Not Provided  
**Chain Of Custody:** 84711  
**Date Analyzed:** 07/12/2001  
**Person Submitting:** [REDACTED]  
**Report Date:** 12-Jul-01

**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 (ft <sup>2</sup> ) | Reporting Limit          | Final Result                | Comments  |
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|--------------------------|-----------------------------|---|
| 0158820           | 101                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 453.13 ug/ft <sup>2</sup>   | The wipes submitted on this chain of custody had different specifications than those used to determine laboratory reporting limits. |
| 0158821           | 102                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 833.26 ug/ft <sup>2</sup>   |   |
| 0158822           | 103                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 11849.85 ug/ft <sup>2</sup> |   |
| 0158823           | 104                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 47098.09 ug/ft <sup>2</sup> |   |
| 0158824           | 105                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 21173.28 ug/ft <sup>2</sup> |   |
| 0158825           | 106                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 145.44 ug/ft <sup>2</sup>   |   |
| 0158826           | 107                  | Flame         | Wipe        | ****           | 1,000                         | 40.00 ug/ft <sup>2</sup> | 7440.20 ug/ft <sup>2</sup>  |   |

Analysis Method for Flame (Wipes, Paints, Aurs and Soil/Solids): EPA 600/R-93/200(M)-7420  
Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight  
%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] Non-Responsive

Technical Manager: [REDACTED] 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 air samples.

## BULK SAMPLE DATA

For use of this form see USAFHA 76-141 or the proponent is MCHB-DC-LLC

Return Address (complete address including zip code)

LAE Consulting  
1218 Scattered Pine Ct  
Savannah, MD 21144

Point of Contact (see USAFHA 76-141)

Non-Responsive

Sampled Installation  
Bldg 420 Int. Armory  
Lumberton, N.C.

Project Number

01-06

ARLOC

Samples Collected By

Non-Responsive

LAE CONSULTING

Date Collected

27 June 2001

Date Shipped

3 July 2001

Description of Operation

Old DEACTIVATED INDOOR FIRING RANGE

Location (BLDG/AREA)

DEACTIVATED FIRING RANGE

Associated Complaints (be specific)

Range DEACTIVATED IN 1985. NG, O&amp;H office would like to see if it was adequately decontaminated.

Associated Air Samples

If yes, list sample numbers

☐

YES

☒

NO

## Label Information

Trade Name

NSN

Manufacturer

Address

MSDS Attached

☐

YES

☒

NO

Analysis Desired

Lead

| Lab Use Only | Sample No. | Constituents   | Results                      | Remarks |
|--------------|------------|--|------------------------------|---------|
|              | 101        | Range cinder block wall Left side                      | 453.13 mg/lft <sup>2</sup>   |         |
|              | 102        | Cinder block wall inside pit of range (RIGHT SIDE)     | 833.26 mg/lft <sup>2</sup>   |         |
|              | 103        | Concrete floor of range pit                            | 11849.85 mg/lft <sup>2</sup> |         |
|              | 104        | Bullet stop inside pit of range (left side)            | 47098.09 mg/lft <sup>2</sup> |         |
|              | 105        | Bullet stop inside of pit range (middle)               | 21173.28 mg/lft <sup>2</sup> |         |
|              | 106        | Bullet stop inside pit range (RIGHT SIDE)              | 145.44 mg/lft <sup>2</sup>   |         |
|              | 107        | TARGET HOLDER (METAL) STATIONARY 2FT A (2ND FROM LEFT) | 744.20 mg/lft <sup>2</sup>   |         |

Comments to Lab:

Please call me @

Non-Responsive

Lab Use Only

Analyst (initials)

Reviewed By (initials)

Date Received

Date Reported

Procedures Performed

Comments:





*Lumberton NC Armory  
B Co 1/120 Infantry*







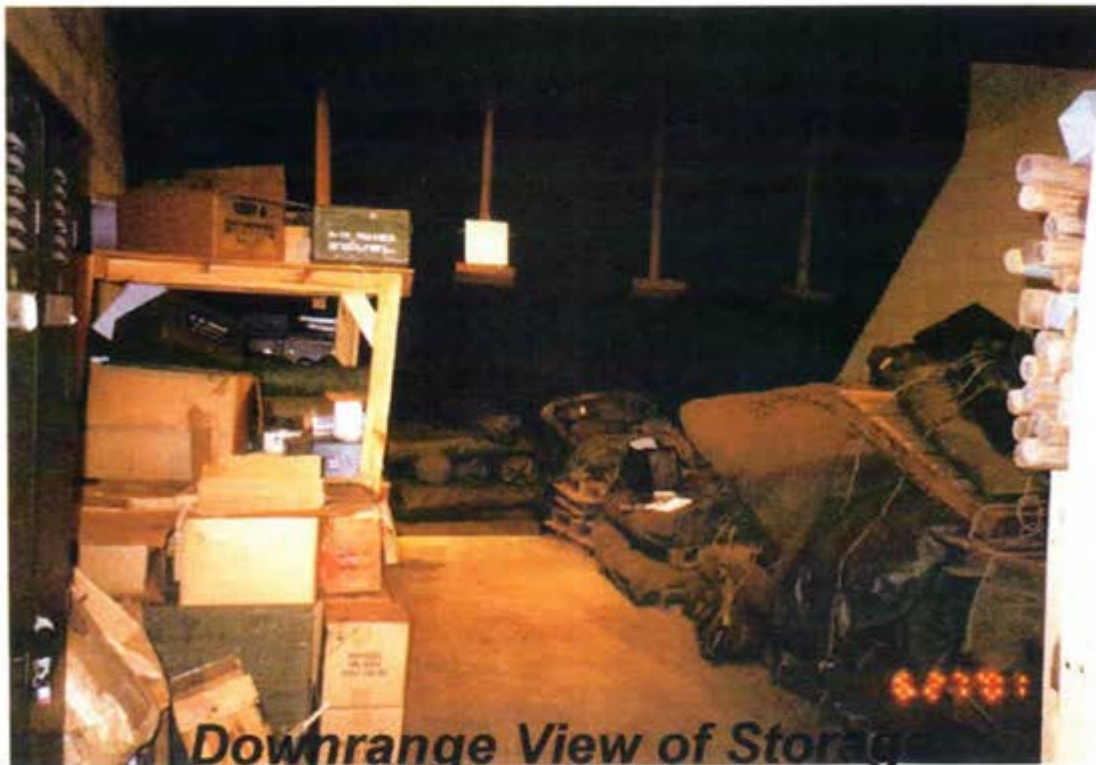
*Entrance To Deactivated  
Indoor Firing Range*



*Deactivated Range  
View Downrange of Vehicle  
Maintenance Platoon Shop Area*



**Downrange View of Storage,  
Ceiling, and Target Holder**



**Downrange View of Storage  
Area and Former Pit of Range**





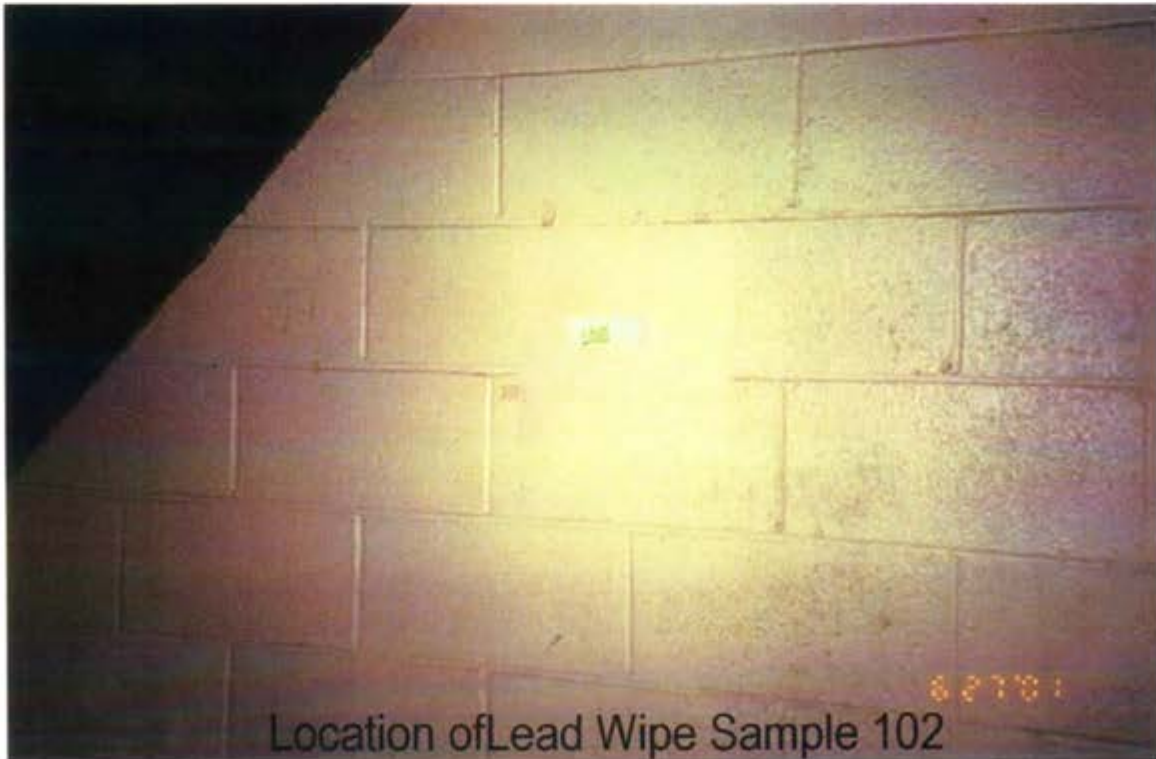
View Uprange From Pit  
Storage of Tents, Camo Net etc.



View Uprange (Vehicle Maint Platoon Shop Area)



**Location of Lead Wipe Sample 101,  
Deactivated IFR Left Side Wall**



**Location of Lead Wipe Sample 102  
Deactivated IFR Right Side Wall**





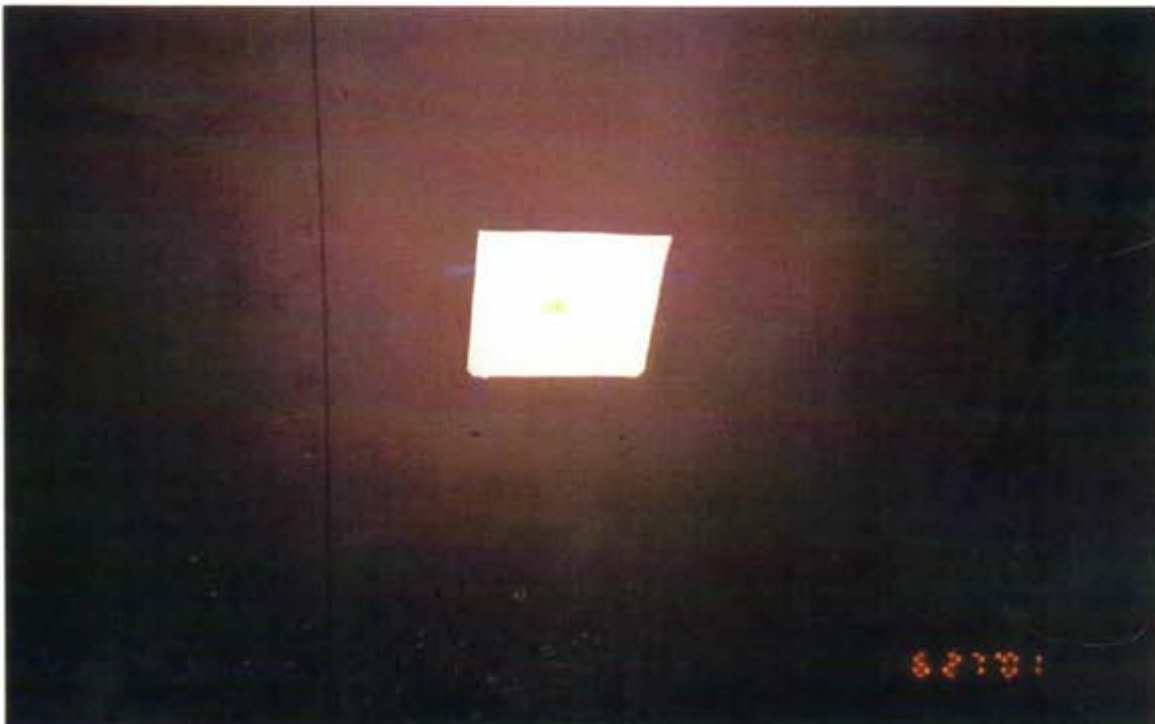
**Location Of Lead Wipe Sample 103,  
Deactivated IFR Lumberton, Floor of Range Pit**



**Location of Lead Wipe Sample 104,  
Left Side Wall of Bullet Stop**



Location of Lead Wipe Sample 105,  
Deactivated IFR Lumberton, Middle of Bullet Stop



Location of Lead Wipe Sample 106,  
Right Side Wall of Bullet Stop





Location of Lead Wipe Sample 107,  
Deactivated IFR Lumberton, Targer Holder (2nd from left)

## HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|  |  |                                     |
|--|--|-------------------------------------|
| ARLOC                                  | INSTALLATION<br>B Co 1120 Infantry<br>Lumberton N.G. | BLDG/RM NO.<br>4502 Fayetteville Rd |
| LOCATION/CODE<br>AA                    | OPERATION/CODE<br>Administrative Operation/ADO       |                                     |
| SURVEY DATE<br>27 June 2001            | EVALUATOR (Initials)<br>LAE Consulting               |                                     |
| MACOM/CODE<br>NG / National Guard Army | SUBMACOM/CODE  | SUPERVISOR<br>SFC Non-Responsive    |
| TELEPHONE/DSN NO.<br>Non-Responsive    | UNIT/ORGANIZATION<br>B Co 1120 Infantry              | RAC<br>4                            |
| NO. CIV(S)                             | NO. MIL<br>4 Full Time                               | FREQUENCY (hrs/day)<br>+8 HRS       |
| NO. CONTRACTOR(S)                      | NO. LOC(S)   | NO. OTHER                           |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE       | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|-----------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FACE SHIELD     | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT   | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET  | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                 |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                           |  |                                     |
|---------------------------|--|-------------------------------------|
| ARLOC                     | INSTALLATION<br>B Co 1120 Infantry<br>Lumberton National Guard | BLDG/RM NO.<br>4502 Fayetteville Rd |
| LOCATION/CODE<br>SC       | OPERATION/CODE<br>SAF  |                                     |
| SURVEY DATE<br>27 June 01 | EVALUATOR (Initials)<br>LAE Consulting                         |                                     |
| MACOM/CODE<br>NG          | SUBMACOM/CODE  | SUPERVISOR<br>SFC Non-Responsive    |
| TELEPHONE/DSN NO.         | UNIT/ORGANIZATION<br>B Co 1120 Infantry                        | RAC<br>4                            |
|                           |  | FREQUENCY (hrs/day)<br>+8           |
| NO. CIV(S)                | NO. MIL<br>4   | NO. CONTRACTOR(S)                   |
|                           |  | NO. LOC(S)                          |
|                           |  | NO. OTHER                           |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

## Safety

### GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

#### Glossary

##### 1. Purpose

This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.

##### 2. References

Related publications are listed below.

a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).

b. **AR 11-34** (The Army Respiratory Protection Program).

c. **AR 40-5** (Preventive Medicine).

d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).

e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).

f. **USA-EHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).

g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhered to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Det 1 HHC 30<sup>th</sup>  
HSB, ATTN: **Non-Responsive** 230 Witherington Street, Mt. Olive, NC 28365.

SUBJECT: Industrial Hygiene Survey of the Mt. Olive National Guard Armory, Mt. Olive, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.



3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **Non-Responsive** COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

March 2, 2003

**Non-Responsive**

NC Army National Guard Armory  
230 Witherington Street  
MT. Olive, NC 28365

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**MT.OLIVE ARMORY**

**MT.OLIVE, NC**

**DATE:**

**JANUARY 13,2003**

**PREPARED BY**

**Non-Responsive**  
**583 GINGER CAKE RD**  
**FAYETTEVILLE, GA 30214**  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Supply air grills offices

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

## **1.0 INTRODUCTION**

At the request of the National Guard Bureau South Region Industrial Hygiene Office, Angel M. Guardiola performed a Baseline Industrial Hygiene Survey at the NC ARNG MT. Olive Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the MT. Olive Armory.

The building was finished in 1961. The facility houses Det. 1HHC 30<sup>th</sup> HSB. The armory is used by the troops of Det. 1HHC 30<sup>th</sup> HSB for their monthly weekend drills.

The Det. 1HHC 30<sup>th</sup> HSB with 60 troops has 1 full time AGR personnel and 1 civil service technician at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30 PM. The facility houses administrative areas, a drill Hall, classrooms, a supply room, a weapons vault, a kitchen, a library, maintenance areas and a deactivated Indoor Firing Range. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed for each operation. Illumination survey was performed throughout the facility.

## **2.0 INSTRUMENTATION/CALIBRATION**

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

## **3.0 FINDINGS**

**Illumination**

Illumination levels were recorded in administration offices, classrooms, library, and supply room. Light measurements were below IES guidelines at the personnel office, the library and the maintenance room. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

**Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, five to six hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Civilian technician reported that she has been treated for the last two years for shoulder and wrist problems. Has had medication for pain and wore a wrist brace.

**Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes 15 M998 HMMWV, vehicles 3 5T vehicles, 2 HEMMET vehicles, 1 1.25T pick-up truck and a 1 5T wrecker. Only PMC are performed at the armory. When repairs are needed the vehicles are taken to the OMS in Goldsboro.

**Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and training on weekend drills. The Drill Hall is used to clean weapons about 2-3 times a year. Bay (Roll-up) door is kept open (weather permitting) when the weapons are cleaned. Personnel do not allow the use of the Drill Hall for vehicle maintenance. The Drill Hall is rented occasionally for family reunions and church socials. The kitchen is not used for cooking on weekend drills. An outside catering service is used.

**Boiler Room**

The pipes and boiler wrappings appear intact with no fractures. No water leakage observed at the time of the survey. It uses natural gas. Personnel report that some areas of the building get warmer than others (Ex. Maintenance Room).

**Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area. Original acoustic material is present on the walls. The floor is concrete. Locked wooden and wire compartments are used to store equipment. Six swipe samples



were taken from the IFR. Four of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

| Sample Number | Sample Location                   | Results |
|---------------|-----------------------------------|---------|
| 21            | Bullet backstop                   | 4840ug  |
| 22            | Floor in front of bullet backstop | 1820ug  |
| 23            | Item stored in IFR                | 1090ug  |
| 24            | Item stored in IFR                | 538ug   |
| 25            | Wall next to entrance/exit door   | 160ug   |
| 26            | Blank                             | BLR     |

### **Weapons Vaults**

The MT. Olive Armory has a weapon storage vault located in the Supply Room. The weapons list includes; M-16s, 9mm pistols and 50 Cal. machine guns. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about 2-3 times a year in the Drill Hall with the doors open (weather permitting), using tables that are set up in the Drill Hall.

### **A/C System**

Central A/C unit is used to cool the three administrative offices. The Supply Room also has a central A/C unit. The Library and the Classroom have window A/C units. One of the A/C window units in the Classroom has not been working for at least 6 months. The filter was checked and found very dirty. Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by personnel of the Armory and the A/C filter. All samples were below the clearance level of 200 ug/ft<sup>2</sup>.

**Table 2**

| <b>Sample Number</b> | <b>Sample Location</b> | <b>Results</b> |
|----------------------|------------------------|----------------|
| 31                   | CO Office              | BRL            |
| 32                   | Readiness NCO Office   | 28ug           |
| 33                   | Personnel Office       | BRL            |
| 34                   | Filter Supply Side     | 25ug           |
| 35                   | Filter Fan Side        | BLR            |
| 36                   | Blank                  | BLR            |

**Material Safety Data Sheets**

The Material Safety Data Sheets (MSDS) Book is located at the Readiness NCO Office. Personnel reported that the book is updated when new products come in. There was no Hazardous Materials Inventory List present in the Oil Shed (located behind the building inside the Motor Pool) at the time of the survey. An independent contractor was schedule to come the week after to produce for the facility with a new MSDS book and A Hazardous Materials Inventory List. SSG Pittman attended a Hazmat Training course a few years ago.

**Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

**Table 3**

| <b>Location</b>          | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|--------------------------|--|---|
| ADO Readiness NCO Office | 36-99 (Avg. 61)                        | 50-100  |
| ADO Personnel Office     | 27-58 (Avg. 41)                        | 50-100  |
| ADO CO Office            | 43-59 (Avg. 50)                        | 50-100  |
| Classrooms               | 51-99 (Avg. 53)                        | 50-100  |
| ADO Supply Room          | 8-31 (Avg. 14.5)                       | 20  |
| Maintenance Supply       | 23-127 (Avg. 64)                       | 20  |
| Library                  | 30-49 (Avg. 39)                        | 50-100  |

Light measurements were below IES guidelines at the Personnel Office, the Library and at the Maintenance Room. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.

- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**



## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3).
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- The A/C filter should be replaced in a timely manner according to manufacturer recommendation. A repair request should be sent through the appropriate channels to repair or replace out of order A/C window unit in the Classroom.
- The Heating System should be checked to address the concern (as reported by personnel) that some areas the armory get warmer than others when the heater is turned on.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A Hazardous Materials Inventory List with current MSDS should be developed and placed in the Oil Shed. MSDS book should be updated periodically. Ensure that personnel have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

BEST AVAILABLE COPY

SECTION 1.

DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION MT. Olive NC Armory c. BLDG/RM NUMBER Reading NCO Office  
d. LOCATION/CODE AA e. OPERATION/CODE ADD f. DESCRIPTION Reading NCO, Set up school for troops, Computer work 5-6 hrs, Ans. Tel.  
g. MACOM/CODE NG h. SUPERVISOR Non-Responsive  
i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. RAC Non-Responsive k. FREQUENCY (Hrs Per Day) Non-Responsive  
l. NO CIV(S) Non-Responsive m. NO MIL Non-Responsive n. NO CONTRACTOR(S) Non-Responsive o. NO LOC(S) Non-Responsive p. NO OTHER Non-Responsive

SECTION 2.

IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTH(S) Non-Responsive  
e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

SECTION 3.

SURVEY DATA

a. SURVEY DATE 1-13-03 b. EVALUATOR (INITIALS) Non-Responsive

| c. CONTROLS PRESENT | d. EVALUATION        | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS   |
|---------------------|----------------------|--------------|----------------------|-------------|
| <u>Righting</u>     | <u>36-79; Aug 61</u> | <u>FC</u>    | <u>50-100</u>        | <u>ADGT</u> |
|                     |                      |              |                      |             |
|                     |                      |              |                      |             |
|                     |                      |              |                      |             |

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

| 1. RESPIRATOR           | MANUFACTURER | NIOSH TC NO | R/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNES     | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

SECTION 4.

HAZARD INVENTORY DATA

| a. CAS CODE   | b. HAZARD DESCRIPTION                                  | c. PAC OF EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES OR NO) |
|---------------|--|---------------|---|
| <u>PO VDT</u> | <u>Daily use of computers for long periods of time</u> | <u>3</u>      |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |



## SAMPLING DATA

BEST AVAILABLE COPY

[illegible]

**SECTION 6.**

## PERSONNEL DATA

# Non-Responsive

[illegible]

SECTION 7.

**COMMENTS** (Add blank sheet of paper if necessary)

- ① Heaviness NCO
- ② Do Supply work
- ③ Computer work 5-6 hr/day
- ④ Should take breaks when using computers for continuous period of time
- ⑤ No health problems as is job.
- ⑥ Occasional heavy lifting

**PRIVACY ACT STATEMENT**

Title 5 U.S. Code, Section 301: Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each DA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.

**Signature**

# SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37600 b. INSTALLATION MT Olive NC Army c. BLDG/RM NUMBER Personnel Office  
 d. LOCATION/CODE FA e. OPERATION/CODE ADD f. DESCRIPTION Payroll, Admin. (printer, discharge etc), computer work: 6 hrs/day  
 g. MACOM/CODE NG h. **Non-Responsive** i. SUPERVISOR **Non-Responsive**  
 j. TELEPHONE/AUTOVON NUMBER \_\_\_\_\_ k. RAC \_\_\_\_\_ l. FREQUENCY (Hrs Per Day) \_\_\_\_\_  
 m. NO CIV(S) \_\_\_\_\_ n. NO MIL \_\_\_\_\_ o. NO CONTRACTOR(S) \_\_\_\_\_ p. NO LOC(S) \_\_\_\_\_ q. NO OTHER \_\_\_\_\_

# SECTION 2. IH STAFFING DATA

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOTH-S \_\_\_\_\_  
 e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

# SECTION 3. SURVEY DATA

a. SURVEY DATE 1-13-03 b. EVALUATOR (INITIALS) **Non-Responsive**

| c. CONTROLS PRESENT | d. EVALUATION      | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS           |
|---------------------|--------------------|--------------|----------------------|---------------------|
| <u>Lighting</u>     | <u>27-58; 1741</u> | <u>FL</u>    | <u>50-100</u>        | <u>Insufficient</u> |
|                     |                    |              |                      |                     |
|                     |                    |              |                      |                     |
|                     |                    |              |                      |                     |
|                     |                    |              |                      |                     |

## h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

| i. RESPIRATOR           | MANUFACTURER | NIOSH TC NO | R/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  |     |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          |     |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       |     |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNESS    | /   | SAFETY/NONCONDUCTIVE SHOES |     |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

# SECTION 4. HAZARD INVENTORY DATA

| a. CAS CODE  | b. HAZARD DESCRIPTION                                 | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO) |
|--------------|---|---------------|---|
| <u>POVD1</u> | <u>Daily use of computer for long periods of time</u> | <u>3</u>      |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |



Analytical Environmental Servs, Inc.

Date: 2/21/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

|                    |                 |                       |                  |
|--------------------|-----------------|-----------------------|------------------|
| <b>CLIENT:</b>     | Non-Responsive  | <b>Lab Order:</b>     | 0302423          |
| <b>Project:</b>    | Lead Wipe       | <b>Date Received:</b> | 2/14/2003 11:30: |
| <b>Project No:</b> | Angel Guardiola | <b>Matrix:</b>        | Wipe             |
| <b>PO No:</b>      |                 | <b>Analyst:</b>       | Non-Responsive   |

olive  
Armory

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF   | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|------|----------------|---------------|
| 0302423-001A  | 1                | 69.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-002A  | 2                | 103     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-003A  | 3                | 218     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-004A  | 4                | 66.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-005A  | 5                | 53.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-006A  | 6                | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-007A  | 11               | 50.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-008A  | 12               | 26.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-009A  | 13               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-010A  | 21               | 4840    | µg, Total | 9.17 | 3.24 | 1/13/2003      | 2/19/2003     |
| 0302423-011A  | 22               | 1820    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-012A  | 23               | 1090    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-013A  | 24               | 538     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-014A  | 25               | 160     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-015A  | 26               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-016A  | 31               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-017A  | 32               | 28.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-018A  | 33               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-019A  | 34               | 25.0    | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-020A  | 35               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-021A  | 36               | BRL     | µg, Total | 2.83 | 1    | 1/13/2003      | 2/19/2003     |
| 0302423-022A  | 41               | 2290    | µg, Total | 6.08 | 2.15 | 1/14/2003      | 2/19/2003     |
| 0302423-023A  | 42               | 192     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-024A  | 43               | 57.0    | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-025A  | 44               | 74.0    | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-026A  | 45               | 21.0    | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-027A  | 46               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-028A  | 51               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-029A  | 52               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |

**Qualifiers:** MDL - Method Detection Limit  
ND - Not Detected at the Reporting Limit

DF - Dilution Factor



**Mt. Olive, NC  
Armory**







## Drill Hall







**IFR Bullet  
Backstop**

**IFR Floor in Front  
of Bullet Backstop**





## IFR Sampling Areas





**IFR Sampling Area**

**Heating Grill**







**A/C Outlet Grill**

**A/C Filter**





## MOTOR POOL







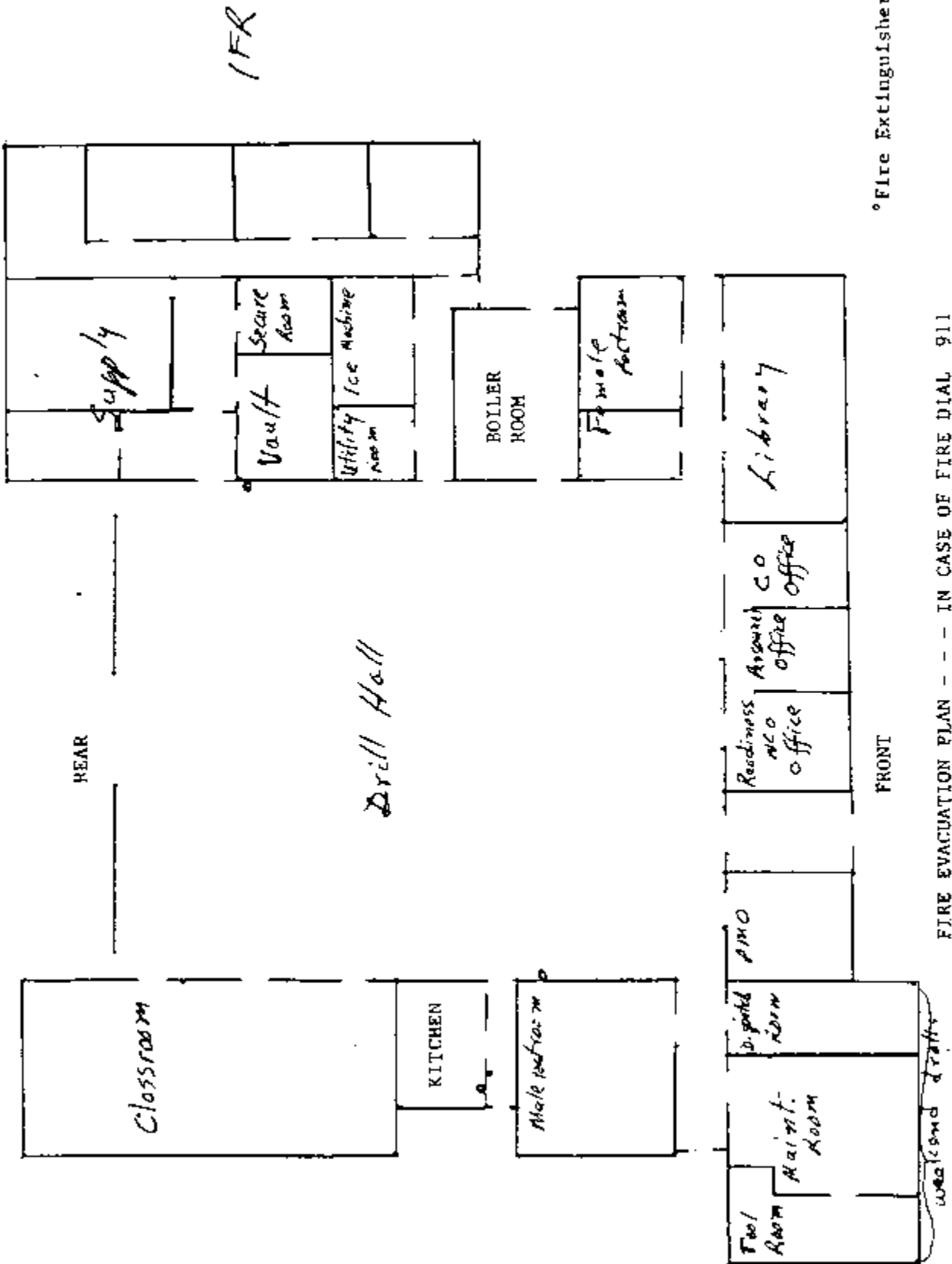
**Boiler Room**

**Oil Shed**





MT. OLIVE NATIONAL GU. ARMORY



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard Detachment 1,  
Company B (-) 1/120<sup>th</sup> Infantry (Mechanized), ATTN: **Non-Responsive** 1030 Eastern  
Ave, Nashville, North Carolina, 27856.

SUBJECT: Industrial Hygiene Survey of the Nashville National Guard Armory,  
Nashville, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. [REDACTED] lienist, ARNG-IHS, 1-800-362-0262 OR

**Non-Responsive**

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO [REDACTED] Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**LAE Consulting**

1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

7 June 2002

MEMORANDUM FOR: Detachment 1, Company B (-) 1/120<sup>th</sup> Infantry (Mechanized),  
ATTN: **Non-Responsive** 1030 Eastern Avenue, Nashville North Carolina, 27856

SUBJECT: Industrial Hygiene Survey of Nashville National Guard Armory, Nashville,  
North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Nashville NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

SUBJECT: Industrial Hygiene Survey of Nashville National Guard Armory, Nashville, North Carolina

3. Background. At the request of [Non-Responsive] of the National Guard Bureau Region South Industrial Hygiene Office, [Non-Responsive] Consulting conducted an industrial hygiene survey at the Nashville National Guard Armory in Nashville, North Carolina on 22 May 2002.

4. Facility Description. This facility houses the Company C (-) 1/119<sup>th</sup> Infantry (Mechanized). The Armory has one full time personnel. The soldier performs administrative duties Monday through Friday between 0800 and 2000 hours. AGR soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The soldier hold the MOS 11M (Infantryman). The Armory is utilized for drills on the weekend. The building was constructed in the 1950s. The facility houses four administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

5. Findings.

a. Material Safety Data Sheets (MSDS) and chemical inventory was available and located in the Hazardous material storage building on chemicals that are in use by this Armory. The Readiness NCO has not attended Hazard Communication Program Training but has attended the Facility Environmental Coordinator Course.

b. A deactivated Indoor Firing Range was converted into a large storage area. The range is located off the Drill Hall. Original acoustic material is present on the walls. The range floor is concrete. Excess equipment, tents, tables, chairs, and TOE equipment are stored in the range. A community college uses the range to store equipment and supplies for a Carpentry class that is given in the Drill Hall. Weight lifting equipment is located near the pit. The pit is used to store weight lifting equipment, exercise mats and wood used in the carpentry class. The range was decontaminated and cleared December 14, 1995. Nineteen bags of sand weighing 38,532 pounds were removed. Six wipe samples for Lead were taken (Table 1). Five of the six samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3).

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 2

**SUBJECT: Industrial Hygiene Survey of Nashville National Guard Armory, Nashville, North Carolina**

**Table 1**

| <b>Sample Number</b> | <b>Sample Location</b>          | <b>Results</b>          |
|----------------------|---------------------------------|-------------------------|
| 197                  | Backstop, left 10 ft up         | 850 ug/ft <sup>3</sup>  |
| 198                  | Backstop, right 5 ft up         | 310 ug/ft <sup>3</sup>  |
| 199                  | Backstop, middle side 1 ft up   | 870 ug/ft <sup>3</sup>  |
| 200                  | Pit floor, middle near backstop | 240 ug/ft <sup>3</sup>  |
| 201                  | Pit floor, right near backstop  | 4300 ug/ft <sup>3</sup> |
| 202                  | Floor, at entrance to the range | <20 ug/ft <sup>3</sup>  |

c. The Communication and Nuclear, Biological and Chemical (NBC) equipment room houses an Arms room. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. The Readiness NCO was educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

d. The Drill Hall is used primarily for drills. The Hall is rented to the general population and the Community College utilizes the space for a Carpentry class. Visual examination indicated no apparent vehicle maintenance being performed in this area.

e. POLs (petroleum, oil and lubricants), chemicals, and waste oils are stored in a Connex building/container outside the Armory. The metal building stores excess paint, Brake Free (a lubricant), Dry cleaning Solvent, and brake fluid, Spray paint, and Naphtha. The all metal storage unit has a side vent for ventilation.

f. The exhaust louvers in the kitchen are not opening when the unit is turn on. The motor is running. A workorder request has been submitted for a new range hood with a fire suppression system. The unit does not have an assigned Mess platoon, but the kitchen is rented to the community twice a month.

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Telephone: (410) 551-2717

Page 3



SUBJECT: Industrial Hygiene Survey of Nashville National Guard Armory, Nashville, North Carolina

6. Recommendations.

a. Continue to update the chemical inventory when receiving new items. Ensure all chemicals known to be hazardous have a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. Make a master copy of the inventory and all associated MSDSs and place it within the Armory where it is accessible to all personnel. The need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing additional lead wipe sampling.

c. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Include items that contain a radioactive source on the hazardous chemical inventory. The item name, the radioactive material in the item, and the storage location should be listed on the inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFO) in North Carolina, Hazardous Waste office.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

e. Consider purchasing a storage building that is suitable for storage of POLs. The building at a minimum should have catchments in the floor and rated for chemical and flammable storage. Dispose of all chemicals that are not currently used. Further assistance for disposal may be obtained from the USPFO, NC, and Hazardous Waste Office.

f. Submit a work order request to repair the broken louver on the exhaust system.

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Page 4

SUBJECT: Industrial Hygiene Survey of Nashville National Guard Armory, Nashville, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos
4. Lead Wipe Results

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 5

Nashville North Latrobe, N. G. Army  
 (b) LOCATION OF EXTINGUISHERS  
 FIRE EVACUATION ROUTE DIAGRAM



**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting **Job Name:** Nashville National Guard Armory, North Carolina **Chain Of Custody:** 88415  
**Address:** 1218 Scattergood Place Court **Job Location:** Not Provided **Date Analyzed:** 6/3/02  
 Severn, Maryland 21144 **Job Number:** Not Provided **Person Submitting:** [Redacted]  
**Attention:** [Redacted] **Report Date:** 03-Jan-02

**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 |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|--------------|----------|
| 0251884           | 197                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | 850          | ug/R²    |
| 0251885           | 198                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | 310          | ug/R²    |
| 0251886           | 199                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | 870          | ug/R²    |
| 0251887           | 200                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | 240          | ug/R²    |
| 0251888           | 201                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | 4300         | ug/R²    |
| 0251889           | 202                  | Flame         | Wipe        | 1.000          | 20.00            | ug/R²           | < 20         | ug/R²    |

Analysis Method for Flame (Wipes, Paints, Aers and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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: [Redacted]

This report applies only to the sample or samples investigated and is not necessarily indicative of the quality or condition of the product. As a neutral provider 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 polynuclear light microscopy of bulk samples and transmission electron microscopy of AIEHA air samples.

An AIHA (40253), NVLAP (01143), NY ELAP (0189700) Accredited Laboratory  
 4475 Furley Blvd. • Lanham, MD 20706 • (301) 439-2630 • FAX (301) 439-2633



Nashville National Guard Armory, Nashville NC



Views Up and Down Range of the  
Deactivated Indoor Firing Range







## Hazardous Material Storage Connex

# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|   |   |  |
|---|---|--|
| ARLOC   | INSTALLATION<br>Nashville North Carolina, Armory      | BLDG/RM NO.<br>1030 Eastern Ave<br>Nashville, NC 27856 |
| LOCATION/CODE<br>Armory / AA / Administrative | OPERATION/CODE<br>ADO                                 |  |
| SURVEY DATE<br>22 May 02                      | EVALUATOR (Initials)<br>Non-Responsive                |  |
| MACOM/CODE                                    | SUBMACOM/CODE   | SUPERVISOR<br>Non-Responsive                           |
| TELEPHONE/DSN NO.<br>Non-Responsive           | UNIT/ORGANIZATION<br>DET 1, B Co 1120th Inf<br>(Mech) | RAC<br>4   |
| NO. CONTRACTOR(S)<br>1 Active NG              | NO. LOC(S)  | NO. OTHER<br>8 NCO                                     |

## SECTION 2. FACILITY DATA

|                  |                    |                           |
|------------------|--------------------|---------------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS              |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS<br>6 MV |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

Keum - FYL

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1984

NG PAM (AR) 385-16  
ANGPAM 81-101

Safety

GUIDELINES FOR CONVERTING  
INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-S1).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-S1, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
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- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

Glossary

- 1. Purpose  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
- 2. References  
Related publications are listed below.
  - a. DOD 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 302 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).

BEST AVAILABLE COPY

## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

## MEMORANDUM FOR Commander, North Carolina National Guard Armories

SUBJECT: Personnel Listing for Health Hazard Evaluation/Survey

1. Authority:
  - a. AR 40-5, Preventive Medicine, 15 Oct 90.
  - b. Code of Federal regulation (CFR), Title 29, Part 1910, 1 Jul 1990.
  - c. Executive Order 12196, DoD Compliance with CFR 29 CFR 1910, 26 Feb 1980.
  - d. DoD Directive 6050.5; 6055.1-3,5;
  - e. DoD Instructions on Compliance with CFR Title 29, Part 1910.
2. The Health Hazard Evaluation is currently being conducted by **Non-Responsive** LAE Consulting, Severn, Maryland.
3. A personnel Listing is requested for completion of surveys. Please fill in the information below for all employees working full time at this Armory.

| SSN                   | Non-Responsive | FIRST NAME | MI | SEX | CIV/<br>MIL | MOS/JOB<br>SERIES |  |  |  |  |  |  |
|-----------------------|----------------|------------|----|-----|-------------|-------------------|--|--|--|--|--|--|
| <b>Non-Responsive</b> |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |
|                       |                |            |    |     |             |                   |  |  |  |  |  |  |

int (mech)

LAE Consulting  
 1218 Scattered Pines Court, Severn, Maryland 21144  
 Telephone: (410) 551-2717

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard Detachment 1,  
Company B (-) 1/120<sup>th</sup> Infantry (Mechanized), ATTN: **Non-Responsive** 30 Eastern  
Ave, Nashville, North Carolina, 27856.

SUBJECT: Industrial Hygiene Survey of the Nashville National Guard Armory,  
Nashville, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** LAE Consulting conducted the survey.



3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M.

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

15 August 2001

MEMORANDUM FOR The North Carolina Army National Guard, ATTN: SFC [Non-Responsive]  
[Non-Responsive] P.O. BOX 130 Parkton, North Carolina 28371.

SUBJECT: Industrial Hygiene Survey of the Parkton National Guard Armory, Parkton, North Carolina.

1. References.

- a. Report submitted 5 August 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. [Non-Responsive] of LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

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c. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

d. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **Non-Responsive** COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

**LAE CONSULTING**

1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

August 6, 2001

MEMORANDUM FOR: Company A 1/252 Armor, ATTN: SFC [REDACTED] PO Box  
130 Parkton, North Carolina, 28371

SUBJECT: Industrial Hygiene Survey of Parkton National Guard Armory, Parkton, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Parkton NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. Health Hazard Inventories can be found in Enclosure 2. Photographs of the facility can be found in Enclosure 3.

SUBJECT: Industrial Hygiene Survey of Parkton National Guard Armory, Parkton, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Parkton National Guard Armory in Parkton, North Carolina on 26 June 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the A Co 1/252 Armor. The Armory has four full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000. The Armory is utilized for drills on the weekend. The building was built in 1986. The facility houses five administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

5. Findings.

a. Material Safety Data Sheets (MSDS) were on file and readily available on chemicals that are and are not in use by this Armory. The Readiness NCO is in the process of updating the MSDSs. Personnel have not received Hazard Communication Program Training.

b. A deactivated Indoor Firing Range was converted into three cubicles storing Nuclear, Biological, Chemical (NBC) equipment, Communication equipment and Maintenance platoon's tools. Personnel stated ammunition was never fired in the range. The area storing the equipment was secure and inaccessible to a visual survey of the bulletstop and trap. Acoustic material covers a portion of the walls and ceiling. The floor is concrete.

c. Water damage was identified on the walls inside the enlisted bathroom. Paint on the cinder block walls is blistered and peeling. The absence of water damage on the exterior wall indicates a preexisting leak.

d. The Arms room located within the Supply Room was visually surveyed. Compasses and wristwatches having a radioactive source are stored in this room. Signage stating "Warning Radioactive Hazard" was not posted. Personnel stated that accountability and issuing of weapons are performed in this area. There is no ventilation system located within this room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

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SUBJECT: Industrial Hygiene Survey of Parkton National Guard Armory, Parkton, North Carolina

e. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area.

f. POLs, propane tanks, and gasoline are stored in a Hazard Material (Haz Mat) Storage room. This room is located near the rear exit of the Drill Hall and shares an adjacent wall with the supply room. A non-mechanical attic type exhaust is installed in the roof. Makeup air is provided through louvers in the door. The entrance is located outside. The light fixture is explosion proof.

g. A solvent tank was recently purchased to clean weapon parts. The tank has mechanical agitation. The dimensions are approximately 5 feet long by 3 to 4 feet wide and 2 feet deep with a lid. Personnel Protective equipment (PPE) is being ordered.

h. Armor Full Integrated Simulator Trainer (AFIST) is a newly constructed building housing a tank. The tank becomes fully functional if needed for a unit deployment. Training is conducted inside the tank where two to four crewmen and one instructor train on tank operations. The instructor operates a computer system, which delivers a real world tactic environment to a Video Display Terminal inside of the tank. A heating, ventilation, and air conditioning (HVAC) system is in place. Local exhaust ventilation is unnecessary since the tank has been rendered inoperable. The building has two egresses.

i. A Unit Conduct of Fire Trainer (UCOFT) is located near the motorpool. Most UCOFT are mobile trailers moving from unit to unit, this is a permanent UCOFT trailer. The UCOFT trains two Armor personnel with one instructor in issuing Fire Commands from a tank. Turrets and control panels are located at two stations. The amount of time spent in the UCOFT depends on the level of training needed to become proficient. The UCOFT is generator capable but is plugged into an outside outlet. A HVAC system is integrated within the walls of the trailer. The Readiness NCO performs basic maintenance such as adding water to the cooling system and changing filters.

j. Prior to this survey, maintenance was performed on the Armory's HVAC system by a local contractor. The contractor removed but failed to replace the system with a new filter and perform custodial maintenance on the lint and debris left from cleaning the system.

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SUBJECT: Industrial Hygiene Survey of Parkton National Guard Armory, Parkton, North Carolina

6. Recommendations.

- a. Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. A need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.
- b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/sq ft (reference g.) consider performing additional lead wipe sampling.
- c. Mold or mildew may develop inside of the building if sources of leaks are not identified. The facility manager or NCO should conduct periodic inspection of the building and report any discrepancies to the Regional Engineering Office.
- d. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office in North Carolina, Hazardous Waste office.
- e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.
- f. The exhaust fan inside the Hazmat Storage room is adequate. If funding is available considering upgrading to a mechanical exhaust system rated fire and explosion proof. Inventory of the chemicals in this room should be conducted. Dispose of all hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

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**SUBJECT: Industrial Hygiene Survey of Fayetteville National Guard Armory,  
Fayetteville, North Carolina**

g. The use of solvent tanks poses a possible health and safety threat if the operation is not properly performed. The type of solvent, the location of tank, and the purchase of appropriate Personal Protective Equipment (PPE) must be taken into consideration prior to operating the solvent tank. Purchase a solvent with low toxicity or low volatility. Recommend keeping the tank outside and away from direct sunlight; post "No Smoking" signs; ensure the lid remains closed when not in use. Discourage the use of military NBC, surgical and/or Playtex type gloves while performing dipping operations, they do not provide the needed chemical protection. Instead, purchase gloves, aprons, goggles and/or face shields that offer the best chemical resistance to the solvent. The North Carolina Safety Office can provide assistance with the selection process.

h. A baseline survey was conducted on the AFIST, since it is a new operation to this Armory. A completed Industrial Hygiene Survey form can be found in Enclosure 2.

i. Continue to perform maintenance on the UCOFT in accordance with the manufacture's specification. Contact the North Carolina Safety office if further assistance is necessary.

j. Recommend monitoring or inspecting the work of future HVAC contractors prior to signing or payment of incomplete work. The filter of a HVAC system removes impurities in the air prior to the release into the supply system. Considering the system in the armory is recirculating with makeup air coming from the outside, the filter is a crucial element in the proper operation of a HVAC system.

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SUBJECT: Industrial Hygiene Survey of Fayetteville National Guard Armory,  
Fayetteville, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**Non-Responsive**

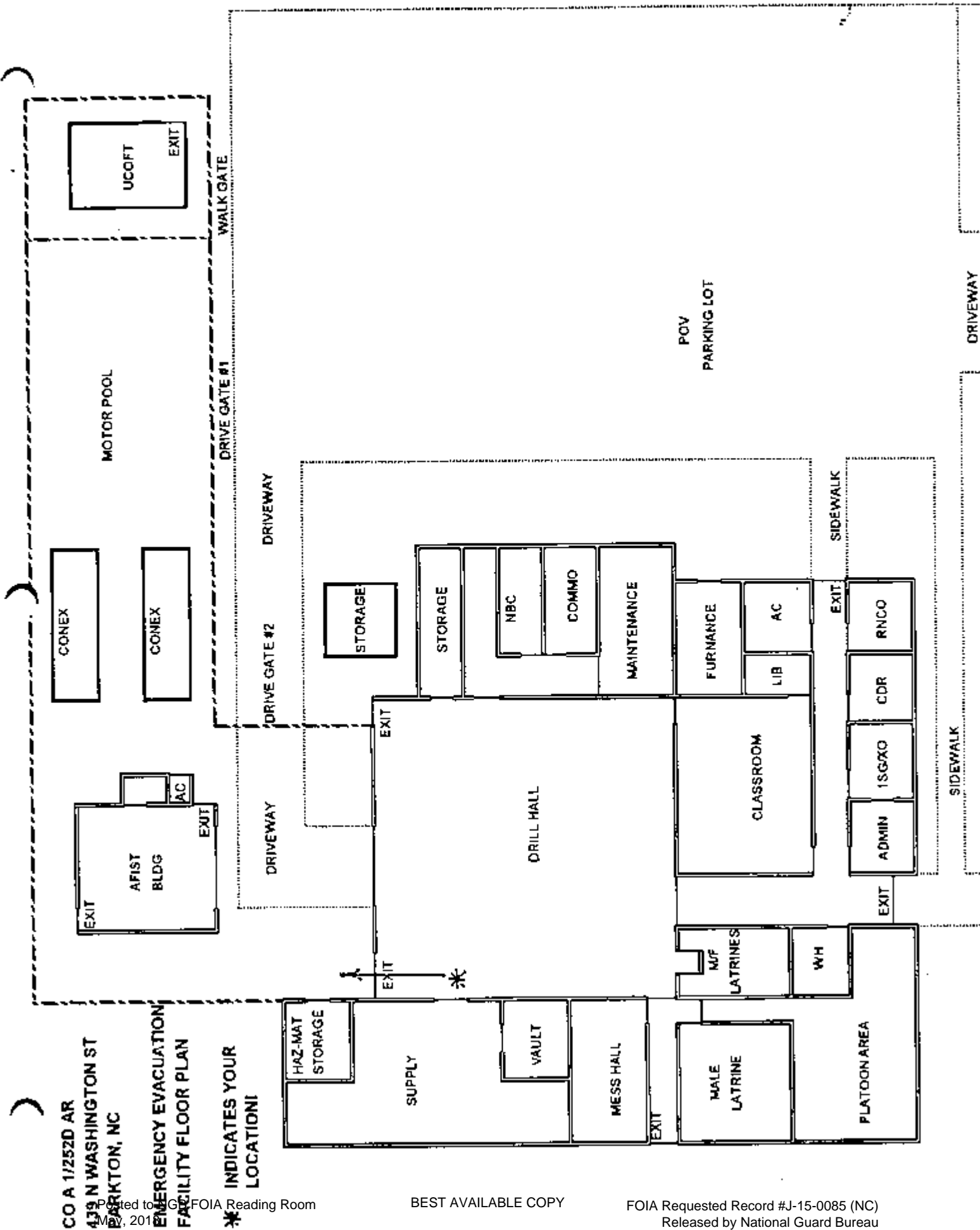
3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717



CO A 1/252D AR  
439 N WASHINGTON ST  
PARKTON, NC

EMERGENCY EVACUATION  
FACILITY FLOOR PLAN

\* INDICATES YOUR  
LOCATION!

## HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1: DEMOGRAPHIC DATA

|  |  |   |
|--|--|---|
| ARLOC                                      | INSTALLATION<br>PARKTON NATIONAL GUARD ARMORY  | BLDG/RM NO.<br>PO BOX 130               |
| LOCATION/CODE<br>AA                        | OPERATION/CODE<br>ADMINISTRATIVE OPERATION/ADO |   |
| SURVEY DATE<br>26 JUNE 2001                | EVALUATOR<br>LAE CONSULTING                    |   |
| MACOM/CODE<br>NG                           | SUBMACOM/CODE                                  | SUPERVISOR<br>SFC <b>Non-Responsive</b> |
| TELEPHONE/DSN NO.<br><b>Non-Responsive</b> | UNIT/ORGANIZATION<br>A CO 1/252 ARMOR          | RAC 4<br>FREQUENCY (hrs/day)<br>+8 hrs  |
| NO. CIV(S)                                 | NO. MIL<br>4 FULL TIME                         | NO. CONTRACTORS                         |
|  |  | NO. LOC(S)                              |
|  |  | NO. OTHER                               |

## SECTION 2: FACILITY DATA

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| LAB HOODS<br>0        | VAPOR DEGREASERS<br>0   | SPRAY BOOTHS<br>0      |
| MAINTENANCE BAYS<br>0 | OPEN SURFACE TANKS<br>0 | VENTILATION UNITS<br>0 |

## SECTION 3: SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIR LINE                |              |              | /   |
| COLD SURFACES   | /   | ABRASIZE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
| SURGICAL GLOVES | /   | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| FRONTAL SAFETY   | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| IMPACT           | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NCN-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

## HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1: DEMOGRAPHIC DATA

|  |   |   |
|--|---|---|
| ARLOC                                      | INSTALLATION<br>PARKTON NATIONAL GUARD ARMORY | BLDG/RM NO.<br>PO BOX 130               |
| LOCATION/CODE<br>SC                        | OPERATION/CODE<br>SAF                         |   |
| SURVEY DATE<br>26 JUNE 2001                | EVALUATOR<br>LAE CONSULTING                   |   |
| MACOM/CODE<br>NG                           | SUBMACOM/CODE                                 | SUPERVISOR<br>SFC <b>Non-Responsive</b> |
| TELEPHONE/DSN NO.<br><b>Non-Responsive</b> | UNIT/ORGANIZATION<br>A CO 1/252 ARMOR         | RAC 4<br>FREQUENCY (hrs/day)<br>+8 hrs  |
| NO. CIV(S)                                 | NO. MIL<br>4 FULL TIME                        | NO. CONTRACTORS                         |
|  |   | NO. LOC(S)                              |
|  |   | NO. OTHER                               |

## SECTION 2: FACILITY DATA

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| LAB HOODS<br>0        | VAPOR DEGREASERS<br>0   | SPRAY BOOTHS<br>0      |
| MAINTENANCE BAYS<br>0 | OPEN SURFACE TANKS<br>0 | VENTILATION UNITS<br>0 |

## SECTION 3: SURVEY DATA

| CONTROLS PRESENT       | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS               |
|------------------------|------------|-----------|-------------------|----------------------|
| NON MECHANICAL EXHAUST | ADEQUATE   | CFM/FPM   | GMV               | IF FUNDING AVAILABLE |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |
|                        |            |           |                   |                      |

## PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIR LINE                |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
| SURGICAL GLOVES | /   | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | X/  | CANAL CAPS                | /   | APRONS                    | X/  | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | X/  | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | X/  | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | X/  | MUFFS                     | X   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| DING HELMET      | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NCN-CONDUCTIVE SHOES | X/  |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |



## HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

|  |  |   |                             |   |  |
|--|--|---|-----------------------------|---|--|
| ARLOC                                      |  | INSTALLATION<br>PARKTON NATIONAL GUARD ARMORY |                             | BLDG/RM NO.<br>PO BOX 130               |  |
| LOCATION/CODE<br>OT                        |  |   | OPERATION/CODE<br>MAN       |   |  |
| SURVEY DATE<br>26 JUNE 2001                |  |   | EVALUATOR<br>LAE CONSULTING |   |  |
| MACOM/CODE<br>NG                           |  | SUBMACOM/CODE                                 |                             | SUPERVISOR<br>SFC <b>Non-Responsive</b> |  |
| TELEPHONE/DSN NO.<br><b>Non-Responsive</b> |  | UNIT/ORGANIZATION<br>A CO 1/252 ARMOR         |                             | RAC 4<br>FREQUENCY (hrs/day)<br>+8 hrs  |  |
| NO. CIV(S)                                 |  | NO. MIL<br>4 FULL TIME                        |                             | NO. CONTRACTORS                         |  |
|  |  |   |                             | NO. LOC(S)                              |  |
|  |  |   |                             | NO. OTHER                               |  |

## SECTION 2: FACILITY DATA

|                       |  |                         |  |                        |  |
|-----------------------|--|-------------------------|--|------------------------|--|
| LAB HOODS<br>0        |  | VAPOR DEGREASERS<br>0   |  | SPRAY BOOTHS<br>0      |  |
| MAINTENANCE BAYS<br>0 |  | OPEN SURFACE TANKS<br>0 |  | VENTILATION UNITS<br>0 |  |

## SECTION 3: SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R= REQUIRED; U = UTILIZED)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIR LINE                |              |              | /   |
| COLD SURFACES   | /   | ABRASIZE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
| SURGICAL GLOVES | /   | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING            | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|--------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | X/  | CANAL CAPS         | /   | APRONS                    | X/  | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS           | X/  | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | X/  | HELMETS            | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | X/  | MUFFS              | X   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NCN-CONDUCTIVE SHOES | X/  |



*A COMPANY 1/252 ARMOR (NG)  
PARKTON, NORTH CAROLINA*







***NBC AND COMMO STORAGE AREA  
(CONVERTED INDOOR FIRING RANGE)***



*PARKTON NG ENLISTED BATHROOM  
DAMAGE FROM WATER LEAK*







*AFIST (ARMOR FULL INTEGRATED  
SIMULATOR TRAINER) BUILDING*



*UCOFT ( UNIT CONDUCT OF FIRE TRAINER) TRAILER*

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

October 23, 2001

MEMORANDUM FOR The North Carolina Army National Guard, HHC 105<sup>th</sup> Engineer Battalion, ATTN: SFC **Non-Responsive** 305 Teal Drive, Raeford, North Carolina, 28358-2671.

SUBJECT: Industrial Hygiene Survey of the Raeford National Guard Armory, Raeford, North Carolina.

1. References.

- a. Report submitted 19 September 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. **Non-Responsive** of LAE Consulting conducted the survey.



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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

September 19, 2001

MEMORANDUM FOR: HHC 105<sup>th</sup> Engineer Battalion, ATTN: SFC **Non-Responsive** 305  
Teal Drive, Raeford, North Carolina, 28358-2671

SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory, Raeford,  
North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory, Raeford, North Carolina**

**2. Purpose.** The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Raeford NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.

**3. Background.** At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Raeford National Guard Armory in Raeford, North Carolina on 20 August 2001 by Ms **Non-Responsive** of LAE Consulting.

**4. Facility Description.** This facility houses the HHC 105<sup>th</sup> Engineer Battalion and Detachment 1, 105<sup>th</sup> Engineer Battalion administration office. The Armory has eleven full time National Guard personnel and Four regular Army personnel attached from 4<sup>th</sup> Brigade 78<sup>th</sup> Training Support Brigade (TSB), Ft Bragg, North Carolina working in the capacity as a Residency Training Detachment. The personnel perform administrative duties Monday through Friday between 0800 and 2000. Soldiers may perform within their Military Occupational Specialty (MOS) during Drill weekend. The MOS's are Fuelers (77F), Combat Engineers (12B), Light and Heavy Wheeled Vehicle Mechanic (63B and 63S), Track Vehicle Mechanic (63Y), Medics (91B), and Administrative Specialist (75H and 75B). The Armory is utilized for drills on the weekend. The armory was built around 1983. The facility houses twelve administrative areas, one kitchen/mess hall, two classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room and a converted indoor firing range.

**5. Findings.**

a. A deactivated Indoor Firing Range (Enclosure 2) was converted into a large storage area. Excess administrative supplies and equipment, Holiday accessories, Fire Extinguishers, Physical Training Mats, floor fans, desks and chairs, and disposable cutlery and tableware are stored in this area. An overhung garage door is located at the rear of the area. An entrance is also located off the Drill Hall. The range was decontaminated and cleared June 26 1996. Fourteen bags of sand weighing approximately 28,392 pounds were removed. A bulk sample of sand was analyzed for lead. The sample was taken from a one-inch crack located between the bottom of the backstop and the pit floor. The result of the bulk sample was below the action limit of 0.01% of Lead. Nine wipe samples for lead were taken (Table 1). Six of the nine samples were above the clearance level of 200-mg/fts<sup>2</sup> indicted in reference g (enclosure 3 and 6).

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina**

**TABLE 1.**

| <b>Sample Number</b> | <b>Sample Locations</b>  | <b>Results</b>  |
|----------------------|--|-----------------|
| 111                  | Left Cinder Block Wall   | 29.43 mg/sqft   |
| 112                  | Right Cinder Block Wall  | <20.00 mg/sqft  |
| 113                  | Right Side of Backstop 6 Ft from Pit Floor                         | 2896.67 mg/sqft |
| 114                  | Middle Side of Backstop 4 Ft from Pit Floor                        | 1780.17 mg/sqft |
| 115                  | Left Side of Backstop 2 Ft from Pit Floor                          | 5379.53 mg/sqft |
| 116                  | Pit Floor (Concrete) near Backstop                                 | 526.38 mg/sqft  |
| 117                  | Middle of Pit Floor  | 691.91 mg/sqft  |
| 118                  | Wall at Exhaust Fan  | 1948.03 mg/sqft |
| 119                  | Drill Hall side Entrance to Range Floor                            | <20.00mg/sqft   |
| 120                  | Bulk Sand Sample from Crack Located Between Pit Floor and Backstop | <0.01 % Lead    |

b. Material Safety Data Sheets (MSDS) were found on some chemicals located in the Armory. A chemical inventory was not developed. Armory personnel have not been trained in Hazard Communication. Supply personnel have been trained in DOT Hazardous Materials Training. Hazardous Wastes are disposed of through Organizational Maintenance Site #10.

c. Four 2500 gallon JP8 Fuel Trucks are assigned to the Unit. The fuel trucks are kept loaded at 2300 gallons of fuel. The trucks hold 2500 gallons of fuel. The trucks are located in the motorpool. A Spill contingency Plan is available for this facility but needs to be updated.

d. The Supply room houses an Arms room, Nuclear, Biological, and Chemical Equipment and TA 50/ CIF area and Chain Saw storage room. The areas were visually surveyed and personnel interviewed. Compasses with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was posted on the entrances to the supply room. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. Chain Saws are used for State Weather Emergency Response. The chain Saws are considered a high value item and are stored in this secure area. The Chain Saws are stored empty of fuel and oil.

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina**

e. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area. The louvers on the exhaust fan in the Drill Hall are in a fixed position reducing the airflow through the fan.

f. Petroleum, Oil and Lubricants (POLs) are stored in two separate areas located with an exterior entrance near the rear exit of the Drill Hall. This room shares an adjacent wall with the Readiness NCO office. One room stores empty gas cans and the other stores in use fuel cans, four 3K generators and oil. The fuel cans in the In-use area are placed in containers to minimize spillage. Both rooms have explosion proof lighting and centrifugal roof ventilation. A few cans were found labeled WATER in the empty can storage area.

g. An Armory soldier had a concern about the air quality of the facility. The soldier had no complaints or history of illness or discomfort during his tenure at this Armory. An investigation of the Heating, Air Conditioning and Ventilation System was conducted. An inexpensive low-density filter is being used. The filters are changed ever quarter. The unit is relatively new. The coils appeared clean and in good repair. This building has been remodeled or renovated slightly. Addition office space was made by building walls.

h. The carpeting in the classrooms was found heavily soiled and beyond repair.

i. The kitchen/mess is rented by the community 6 days a week. The kitchen was found unsanitary. The exhaust fan in the Pots and Pans area was not working.

j. Illumination levels were surveyed on several workstations in four Administrative areas the Armory. Readings ranged 5.6 Foot-candles (FC) to 51.0 FC (Table 2). Windows in a few offices were covered by file cabinets. The walls in the room were painted in dark colors. Overhead fluorescent lighting was in all the areas surveyed. Workstation did not have supplemental lighting such as desk lamps. The facility has recently tried to acquire paint and painting supplies to perform a self help project.

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SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina

TABLE 2.

| Section | Description   | Average<br>FC |
|---------|---|---------------|
| S-1     | SFC Non-Responsive Workstation                                    | 25.4 FC       |
|         | SPC Non-Responsive Computer Workstation w/ Shades<br>Open         | 30.5 FC       |
|         | SPC Non-Responsive Computer Workstation w Shades<br>Closed        | 23.9 FC       |
|         | SPC Non-Responsive Desk w/ Shades Open                            | 51.0 FC       |
|         | SPC Desk w/ Shades Closed   | 31.2 FC       |
| S-4     | SFC Non-Responsive Desk   | 26.9 FC       |
|         | SFC Non-Responsive Computer Workstation                           | 28.4 FC       |
|         | SFC Non-Responsive Filing Cabinet                                 | 19.5 FC       |
| RTD     | Major Non-Responsive Desk   | 11.4 FC       |
|         | MSG Non-Responsive Computer Workstation                           | 29.5 FC       |
|         | CPT Non-Responsive Desk   | 14.7 FC       |
|         | Chief Warrant Officer Non-Responsive Desk/Computer<br>Workstation | 21.9 FC       |

k. The workstations in the administrative areas are not designed for the task. Computers are placed on writing desk. Overstuffed executive chairs are used at computer and multi-tasked workstations. Shared computers were not placed on adjustable workstations.

#### 6. Recommendations.

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/sqft (reference g.), consider performing addition lead wipe sampling.

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina**

b. Conduct a Hazardous Chemicals inventory and obtain MSDS for chemicals utilized in the facility. Ensure that the storage location of the chemical is included on the inventory. Dispose of chemicals that are no longer in use or expired through OMS#10. Maintain chemical inventory with MSDS sheets. Ensure the MSDS book and chemical inventory is available and/or accessible to all Armory personnel. A need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

c. Each installation with the capacity for a release of a reportable quantity of oil or a Hazardous substance must prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan and an Installation Spill Contingency Plan (ISCP). The Spill Contingency Plan should be reviewed and updated every three years. The SPCC plan must include at a minimum spill prevention, readiness of response materials and equipment, personnel training, containment provisions, and a list of spills in past 12 months and the corrective action taken. The ISCP is a plan that describes how personnel will response to a release. The ISCP must include names, addresses and phone numbers of Armory Spill Response Coordinator(s), location of emergency equipment and response materials, An evacuation plan, A flow chart or description of arrangements with local fire and police departments, State or local emergency response teams, A description of personnel actions and responsibilities in response to fires, explosions, or any other unplanned release of hazardous materials at the Armory. Recommend that each individual in the organization is educated on the Spill Response Procedures and the location of response equipment and Spill Plan. Contact the North Carolina Occupational Safety and Health Office for technical assistance on reviewing and or developing Spill Contingency Plans.

d. Continue to ensure that weapons maintenance is not performed inside the Arms Room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office.

e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay. Recommend contacting the State Facility Engineering Office to repair louvers on the exhaust fan.

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina**

- f. Dispose of all excess known to be hazardous chemicals through the OMS#10. Water cans and Gasoline cans are not interchangeable. To reduce the risk of a possible poisoning from gasoline in water, recommend the removal and disposal of all cans in the POL storage that are labeled "WATER".
- g. Recommend contacting the North Carolina Occupational Safety and Health Office if any employees complain of discomfort or if there is an increase of illness within the facility. Consider changing filters on unit every 4 weeks or if monies permit upgrading the filter to one that has a smaller micron capture rate.
- h. Recommend removing the carpeting in the classrooms.
- i. Food and Non food contact surfaces should be cleaned after each use or after periods of interruption. Consider including cleaning and what needs to be cleaned in the rental contracts. The exhaust fan in the pots and pan area is needed to provide ventilation and to reduce moisture and condensation. Contact the State Facility Engineering Office to repair the exhaust fan.
- j. Light colored walls and ceilings can produce a higher room illumination. Daylight is the best and least expensive source of light. Recommend painting walls a lighter color, Removing all obstacles (i.e. file cabinets) from windows, Open vertical blinds while in the offices performing administrative tasks and purchase supplemental lighting such as desk lamps. Continue to request assistance from the State Facility Engineering Office for paint and painting supplies.
- k. The tasks of full time Armory employees are administrative. An evaluation of the design of the workspaces and or workstations should be conducted. Were computers are shared in a workspace consider purchasing an adjustable computer station. Suggest contacting the North Carolina Occupational Safety and Health Office for further assistance or information on workplace/workstation design

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 351-2717

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**SUBJECT: Industrial Hygiene Survey of Raeford National Guard Armory,  
Raeford, North Carolina**

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

6 Encl.

1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

**Non-Responsive**

**LAE Consulting**

**CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140**

**LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717**

**Page 8**



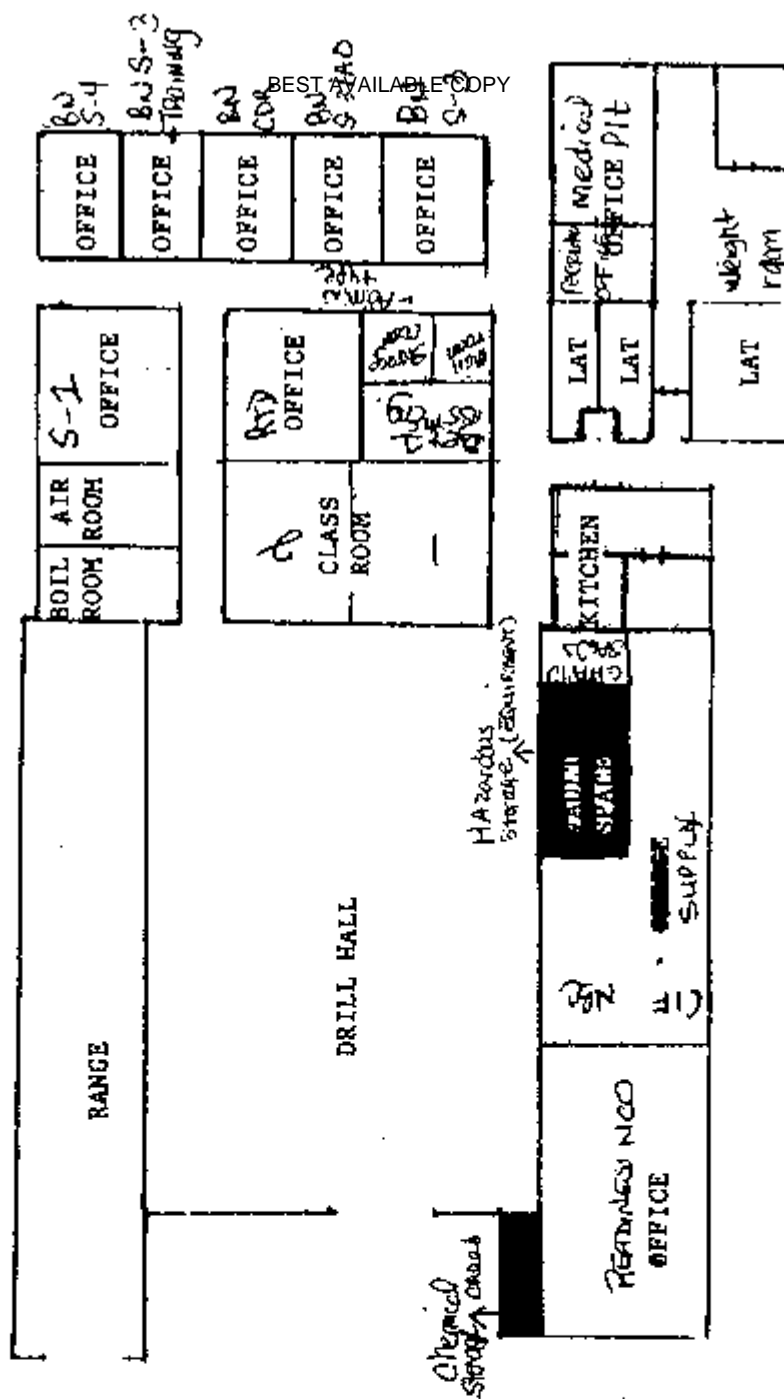
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# PART 4c SPILL CONTINGENCY PLAN (SCP)

Facility Site Diagram

RAEFORD ARMOY

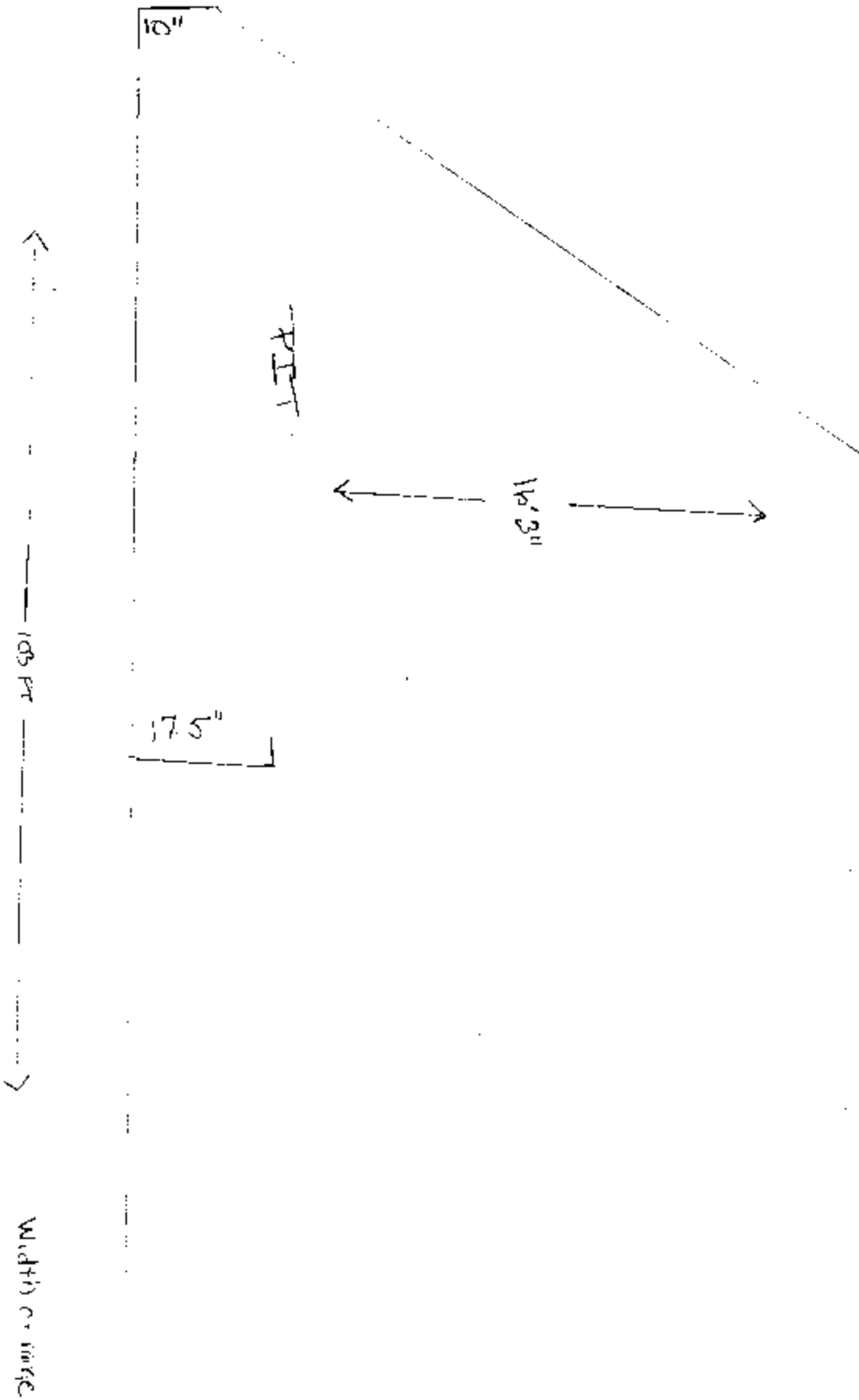
STORAGE  
STORAGE  
STORAGE



- CHEMICAL STORAGE AREAS
- EQUIPMENT HAZARDOUS STORAGE AREAS - CYTODALGES

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# RAEFORD National Guard Army DEACTIVATED RANGE DIMENSIONS



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**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting  
**Address:** 1218 Scattered Pine Court  
Severn, Maryland 21144  
**Attention:** [REDACTED]

**Job Name:** Raeclord, NC National Guard Armory  
**Job Location:** Not Provided  
**Job Number:** 05  
**P.O. Number:** Not Provided

**Chain Of Custody:** 84603  
**Date Analyzed:** 09/06/2001  
**Person Submitting:** [REDACTED]  
**Report Date:** 06-Sep-01

**Summary of Atomic Absorption Analysis for Lead**

| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (ft <sup>2</sup> ) | Reporting Limit | Final Result | Comments |
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|-----------------|--------------|----------|
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|-----------------|--------------|----------|

|         |     |       |            |      |       |                          |                            |  |
|---------|-----|-------|------------|------|-------|--------------------------|----------------------------|--|
| 0172602 | 111 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 29.43 ug/ft <sup>2</sup>   |  |
| 0172603 | 112 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | < 20.00 ug/ft <sup>2</sup> |  |
| 0172604 | 113 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 2896.67 ug/ft <sup>2</sup> |  |
| 0172605 | 114 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 1780.17 ug/ft <sup>2</sup> |  |
| 0172606 | 115 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 5379.53 ug/ft <sup>2</sup> |  |
| 0172607 | 116 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 526.38 ug/ft <sup>2</sup>  |  |
| 0172608 | 117 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 691.91 ug/ft <sup>2</sup>  |  |
| 0172609 | 118 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | 1948.03 ug/ft <sup>2</sup> |  |
| 0172610 | 119 | Flame | Wipe       | **** | 1.000 | 20.00 ug/ft <sup>2</sup> | < 20.00 ug/ft <sup>2</sup> |  |
| 0172611 | 120 | Flame | Paint Chip | **** | N/A   | 0.01 %Pb                 | < 0.01 %Pb                 |  |

Analysis Method for Flame (Wipes, Paints, Airt and Soil/Solids): EPA 600/R-93/200(M)-7420  
Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

N/A = Not Applicable mg/Kg = parts per million (ppm) by weight  
%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] Non-Responsive

**Technical Manager:**

[REDACTED] Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of the product. 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 polars. Light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.



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## ***Reaford North Carolina National Guard Armory***

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Down Range View of  
Deactivated Range



View Uprange of Deactivated/Converted Range

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Location of Lead Wipe Sample 116, Deactivated IFR Raeford, Rear of Floor Near Back Stop



Location of Lead Wipe Sample 117, Middle of Floor



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Location of Lead Wipe Sample 115,  
Deactivated IFR Raeford NG Left Side Wall of Bullet Stop



Location of Lead Wipe Sample 114, The Middle Area of Bullet Stop

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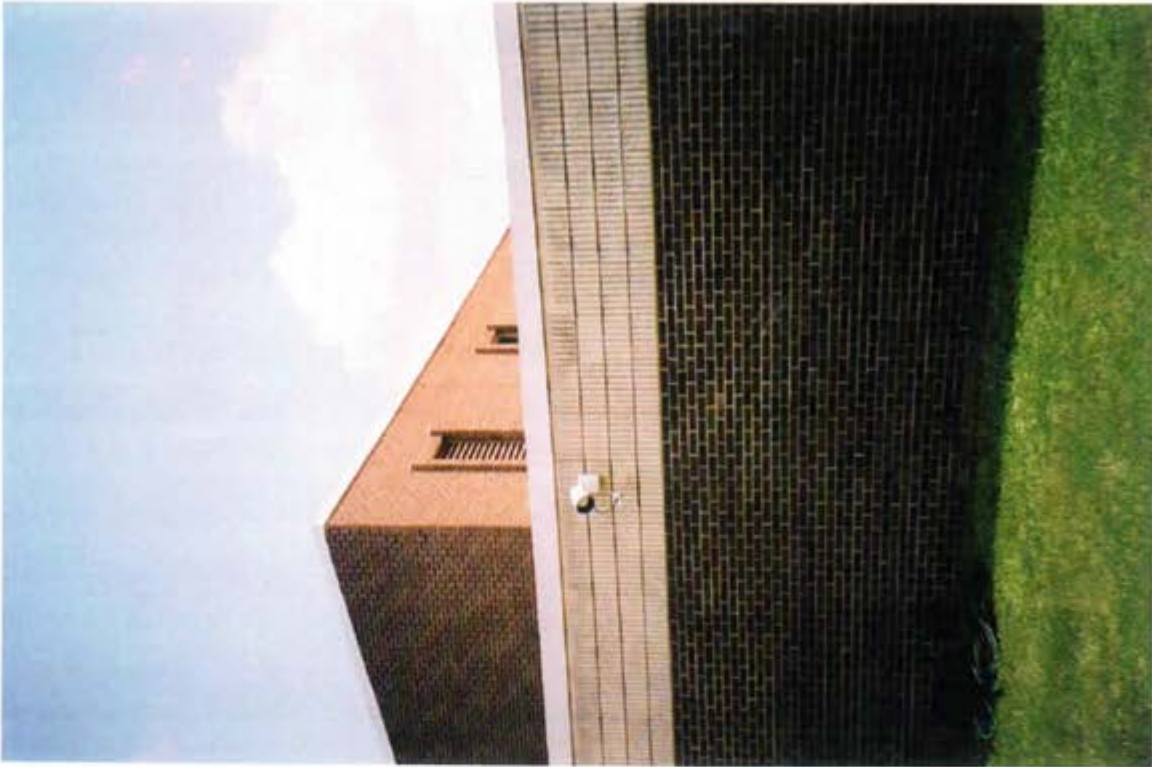
Location of Lead Wipe Sample 113,  
Deactivated IFR Raeford, Right side of Backstop



Location of Lead Wipe Sample 118, IFR Exhaust Fan

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Interior and Exterior View of Exhaust Louvre  
Located Inside Drill Hall





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View Inside Excess Items Storage Trailer  
Located in the Rear of Armory

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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                       |                              |                           |                     |           |
|-----------------------|------------------------------|---------------------------|---------------------|-----------|
| ARLOC                 | INSTALLATION                 | BLDG/RM NO.               |                     |           |
|                       | RAEFORD, National Guard Army | 305 TEAL DR               |                     |           |
| LOCATION/CODE         | OPERATION/CODE               |                           |                     |           |
| AA                    | ADO                          |                           |                     |           |
| ADMINISTRATIVE AREAS  |                              | Administration Operation  |                     |           |
| SURVEY DATE           |                              | EVALUATOR (Initials)      |                     |           |
| 20 AUG 01             |                              | LAE Consulting            |                     |           |
| MACOM/CODE            | SUBMACOM/CODE                | SUPERVISOR                |                     |           |
| National Guard        |                              | SFC <b>Non-Responsive</b> |                     |           |
| TELEPHONE/DSN NO.     | UNIT/ORGANIZATION            | RAC                       | FREQUENCY (hrs/day) |           |
| <b>Non-Responsive</b> | H HC 105th Engineer Btl      | 4                         | 8                   |           |
| NO. CIV(S)            | NO. MIL                      | NO. CONTRACTOR(S)         | NO. LOC(S)          | NO. OTHER |
|                       | 4 REGULAR ARMY               |                           |                     |           |
|                       | 11 ACTIVE GUARD              |                           |                     |           |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| 0                | 0                  | 0                 |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |
| 0                | 0                  | 1                 |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

### PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE  | HAZARD DESCRIPTION         | PAC | EPC |
|-----------|----------------------------|-----|-----|
| 7439-92-1 | LEAD, INORGANIC DIST+FINES | 1   |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |
|           |                            |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME      | FIRST NAME | MI | SEX | SSN            | CATEGORY |
|----------------|------------|----|-----|----------------|----------|
| Non-Responsive |            | E  | M   | Non-Responsive | MIL NG   |
|                |            | N  | M   |                | MIL NG   |
|                |            |    | M   |                | MIL NG   |
|                |            | S  | M   |                | MIL NG   |
|                |            |    | M   |                | MIL NG   |
|                |            | W  | M   |                | MIL NG   |
|                |            | E  | M   |                | MIL NG   |
|                |            | J  | M   |                | MIL NG   |
|                |            | R  | M   |                | MIL NG   |
|                |            |    |     |                |          |

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

**SUBJECT: Personnel Listing for Health Hazard Evaluation/Survey**

2. The Health Hazard Evaluation is currently being conducted by **Non-Responsive** LAE Consulting, Severn, Maryland.

# Non-Responsive

FOIA Requested Record #J-15-0085 (NC)  
Released by National Guard Bureau  
Page 443 of 857



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HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-15/  
ANGPAM 91-101

### Safety

## GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

### CONTENTS (Listed by paragraph numbers)

|  | Para |
|--|------|
| 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    |
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| Cleaning Stored Contaminated Equipment | 10   |
| Contaminated Sand and Lead Waste       | 11   |
| Medical Surveillance                   | 12   |
| Worker Education                       | 13   |
| Personal Protective Equipment          | 14   |
| Point of Contact                       | 15   |

### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

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**APPENDIX B  
INTERPRETATION OF SAMPLE RESULTS  
(PRIOR TO CLEANING)****B-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.

**B-2 BETWEEN 201 and 200,000 micrograms/sq ft**

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

**B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

**B-4** High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

**APPENDIX C  
INTERPRETATION OF SAMPLE RESULTS  
(AFTER CLEANING)****C-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. The paint color must contrast the color of the present substratum.

**C-2 ABOVE 200 micrograms/sq ft**

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

October 23, 2001

MEMORANDUM FOR The North Carolina Army National Guard, HHC 1st Battalion  
252nd, ATTN: SSG [Non-Responsive] 215 Roberts Street, Red Springs, North Carolina,  
28377-1551.

SUBJECT: Industrial Hygiene Survey of the Red Springs National Guard Armory, Red Springs, North Carolina.

1. References.

- a. Report submitted 19 September 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. [Non-Responsive] of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Discuss the friable Asbestos found on the Drill Hall floor and in the Boiler Room around the Boiler. Take action to eliminate this potential health hazard.

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.



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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

September 19, 2001

MEMORANDUM FOR: HHC 1<sup>st</sup> Battalion 252d, ATTN: SSG Non-Responsive 215 Roberts Street, Red Springs, North Carolina, 28377-1551

SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume 1981, Illumination Engineering Society of North America.
- k. Technical Bulletin Medical 530 (TB MED 530), Occupational and Environmental Health, Food Service Sanitation, 1982.
- l. Occupational Safety and Health Administration (OSHA), 29 CFR, 1926.1101, Asbestos

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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Red Springs NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples and Asbestos samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Red Springs National Guard Armory in Red Springs, North Carolina on 21 Aug 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the HHC 1/252 Armor Detachment 1. The Armory has two full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 1630. The Armory is utilized for drills on the weekend. The Armory was built between 1941-1943. The facility houses six administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. One Material Safety Data Sheet (MSDS) was on file for an Industrial Cleaner. The Building Custodian stated that the chemicals utilized by this Armory are stored at OMS #10 (located on the same grounds of Armory). A temporary storage cabinet is used when needed to store chemicals that are in use for a specific task (i.e. Brake Free for weapons cleaning). Chemicals are stored in the cabinet for no more than 4 days. Due to the Readiness NCO's Military Occupation Specialty (MOS) as a Mechanic, he does receive an annual Hazard Material Handlers Course.

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 2

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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

b. A deactivated Indoor Firing Range was converted into three wood cubicles storing Nuclear, Biological, Chemical (NBC) equipment, and excess supplies and equipment. The area was previously survey by the State Safety Office. The Safety representative informed the Readiness NCO that the Cubicles are a fire hazard/ violation because it was constructed from ceiling to floor of wood. It was recommended that the Armory reconstruct either the lower or the upper half with a mesh screening material. Acoustic material covers a portion of the walls and ceiling. The floor is concrete. The range Pit stores Tent Poles, and other equipment. There is evidence of previous munitions use. The Range/ storage area is accessible through a door of the Drill Hall. The range was deactivated and cleared June 24, 1996. Ten bags of sand were removed weighing 20,280 pounds. Seven wipe samples were taken (Table 1). Four of the seven samples were above the clearance level of 200-mg/ftsq indicated in reference g (enclosure 3 and 6).

Table 1.

| Sample Number | Sample Location                            | Results          |
|---------------|--|------------------|
| 121           | Right Cinder Block Wall                    | 1848.48 mg/sg ft |
| 122           | Left Cinder Block Wall                     | 55.83mg/sgft     |
| 123           | Left Side of Backstop 7 Ft from Pit Floor  | 154.98           |
| 124           | Middle of Backstop 4 Ft from Pit Floor     | 28974.53         |
| 125           | Right Side of Backstop 2 Ft from Pit Floor | 1791.88          |
| 126           | Middle of Pit Floor                        | 5484.94          |
| 127           | Outside of the Entrance to the Range       | 94.08            |

c. Water damage was identified on the walls of the Drill Hall. Paint on the cinder block walls is blistered and peeling. Water is entering from beneath the Drill Hall overhung door and through the rear exit door. Water is pooling and causing damage to the floor tiles in the Drill Hall.

d. The Arms room located within the Supply Room was visually surveyed. There is evidence of a previous extensive termite population inside of the room. The Arms room wall was paneled in wood and since has been removed. There is no evidence of termites at this time. Personnel stated that accountability and issuing of weapons are performed in this area. There is no ventilation system located within this room. There was no evidence of weapons repair seen in this room. Dehumidifier is not functional. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. Compasses having a radioactive source are stored within the supply room in a secure location. Signage stating "Warning Radioactive Hazard" was not posted.

LAB Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

e. The Drill Hall is used primarily for drills. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area.

f. There is preexisting damage to the brick exterior of the Armory (Photos at enclosure 4). Damage may have occurred from a tornado that hit in 1984.

g. Presumed Asbestos Containing Material (PACM) was taken from the insulation of the Boiler in the Boiler Room and from floor tiles in the kitchen/mess and Drill Hall Floor. The material on the boiler was an insulation type material. The insulation was broken in some areas. The floor tiles in both the kitchen and Drill Hall floor was cracked and missing. One bulk sample was taken from the boiler insulation, two bulk samples were taken from the Drill Hall floor, and one bulk sample was taken from the Kitchen floor tile. The Mastic and the tiles were analyzed. Polarized Light Microscopy was used to analyze all samples. Samples were analyzed for the presents and percentage of Asbestos (Table 2).

Table 2.

| Sample Number | Sample Locations                 | % Asbestos                   | Total % Asbestos |
|---------------|----------------------------------|------------------------------|------------------|
| 001           | Drill Hall Floor Tile, Lt. Beige | No Asbestos Detected         | N/A              |
| 001M          | Drill Hall Floor Tile Mastics    | 2% Chrysotile                | 2%               |
| 002           | Drill Hall Floor Tile,           |                              |                  |
| 002M          | Drill Hall Floor Tile, Mastics   | 2% Chrysotile                | 2%               |
| 003           | Insulation Material of Boiler    | 5% Chrysotile<br>25% Amosite | 30%              |
| 004           | Kitchen Floor Tile, Dark Green   | 2% Chrysotile                | 2%               |
| 004M          | Kitchen Floor Tile, Mastics      | 2% Chrysotile                | 2%               |

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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

h. Illumination levels were surveyed in the Armory Administrative Office. The walls are paneled in a dark wood. A fluorescent ceiling light ballast was not functioning. Two large windows are located within this area. One administrative personnel perform multi administrative task in this space. Readings were taken and ranged from an average 5.9 Footcandles (FC) to 25.3 FC

(Table 3)

| Location                         |  | Average FC |
|----------------------------------|--|------------|
| CPL [Redacted] Desk              |  | 25.3 FC    |
| CPL [Redacted] Computer Terminal |  | 18.5 FC    |
| At Copier                        |  | 6.2 FC     |
| Additional Workstation           |  | 5.9 FC     |

i. An active Fire Ant mound is located adjacent to an ice machine in the Boiler Room. The insulation material on the boiler was found to be Asbestos Containing Material (ACM). The Ice machine is newly installed and operating.

#### 6. Recommendations.

a. Recommend producing a Chemical Inventory for the chemicals that are used most frequently and stored temporarily. Obtain MSDSs from the OMS #10. Suggest all Armory personnel obtain education on Hazard Communication. North Carolina Occupational Safety and Health Office for can assist you in training requirements.

b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/sg ft (reference g.), consider performing addition lead wipe sampling.

c. The areas where water is entering need repair. Contact the State Facility Engineering Office for assistance in repairs of the Wall, Overhung garage door and the rear exit. The facility manager or NCO should conduct periodic inspection of the building and report any discrepancies to the Regional Engineering Office.

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Telephone: (410) 551-2717

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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

d. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Replace or repair Humidifier to prevent weapons from rusting. Further assistance may be obtained from the United States Property Facility office in North Carolina, Hazardous Waste office.

e. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

f. Recommend contacting the Regional Engineering Office for assistance in repairing and documenting any extensive structural damage. The facility manager or NCO should conduct periodic inspections of the building and report any discrepancies to the Regional Engineering Office.

g. Any material containing more than one percent Asbestos is considered an Asbestos Containing Material [OSHA 29 CFR, 1910.1101]. All samples analyzed were Positive for Asbestos. Recommend North Carolina Occupational Safety and Health office place these areas in the Armory on their Operation and Maintenance Plan. The Armory Readiness NCO should suspend any buffing of the floors until contact has been made with the North Carolina Occupational Safety and Health office (NC, OS&H). It's essential that hazard communication is executed. Communication of this hazard consists of but is not limited to notification of the hazard to appropriate authorities, Labeling of area such as the boiler, Training and/or education of all personnel in the Armory who may be in contact with ACM, and Posting of signs on entrances to areas containing ACM. Please contact the North Carolina Occupational Safety and Health office for assistance in this matter.

h. Lighting in the Orderly room must be upgraded to meet the required 30-50 FC recommended [IES/ANSI RP1-1993]. Recommend repairing the ballast on the fluorescent ceiling fixture. Consider purchasing supplemental lighting such as desk lamps and a floor lamp near the copier. Lighten the color of the walls by painting or removing the wood paneling.

i. Per TB Med. 530, Ice is considered food and all food, including ice must be protected against contamination from dust, insects.... And other sources of contamination. This applies to food being stored, prepared, transported, served or sold. The ice machine is located in area, which is at risk of contamination from fire ants. The personnel retrieving the ice are at risk of exposure to Asbestos from the boiler in the boiler room. It is necessary to reevaluate the location of the ice machine.

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**SUBJECT: Industrial Hygiene Survey of Red Springs National Guard Armory, Red Springs, North Carolina**

**7. Technical Assistance.** For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**3 Encl**

- 1. Building Diagram**
- 2. Diagram of Indoor Firing Range**
- 3. Sample Results**
- 4. Photos of Facility**
- 5. HHIM**
- 6. Excerpts NG Pam 385-16**

**Non-Responsive**  
**LAE Consulting**

**CF: Safety Occupational Health Office, North Carolina NG**  
**4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140**

**LAE Consulting**  
**1218 Scattered Pines Court, Severn, Maryland 21144**  
**Telephone: (410) 551-2717**

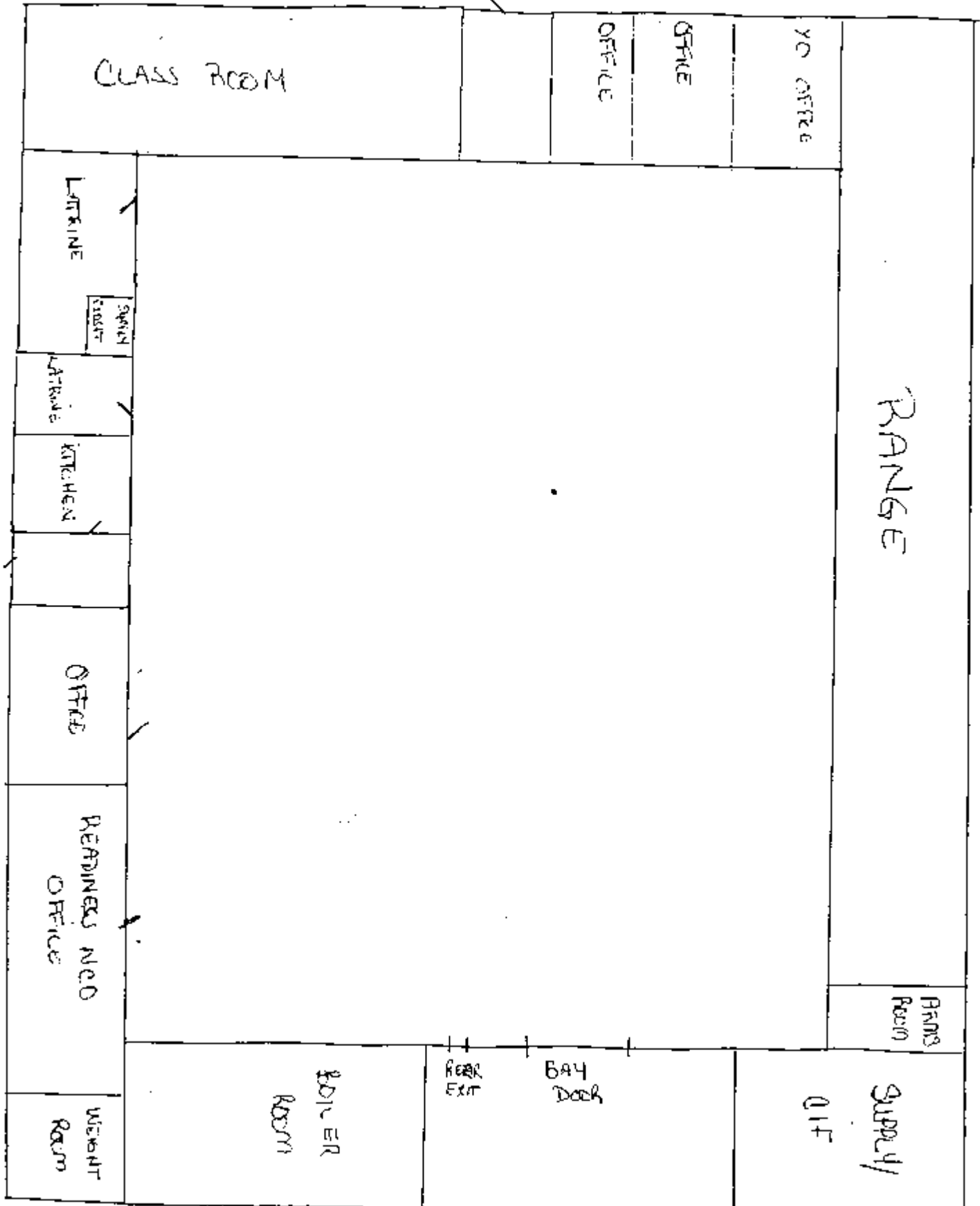
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# FRONT OF ARMORY

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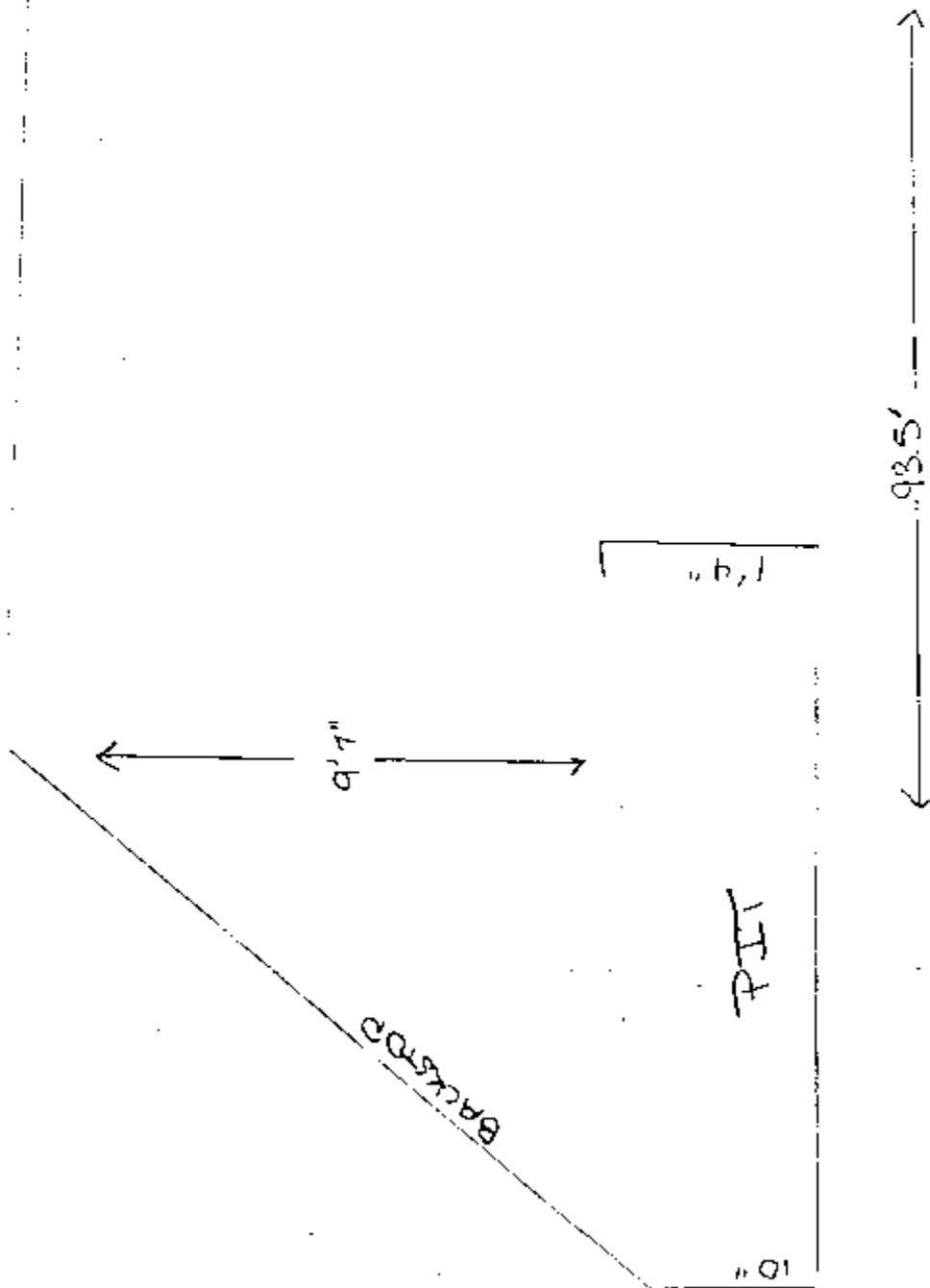
RED SPRINGS

ENTRANCE



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Red Springs National Guard Army  
Deactivated Indoor Firing Range



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WIDTH OF RANGE 19.2'



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CERTIFICATE OF ANALYSIS

Client: LAE Consulting  
Address: 1218 Scattered Pine Court  
Severn, Maryland 21144  
Job Name: Red Springs, NC National Guard Armory  
Job Location: 215 Roberts Street  
Job Number: 06  
P.O. Number: Not Provided  
Chain Of Custody: 84601  
Date Analyzed: 09/06/2001  
Person Submitting: [Redacted]  
Report Date: 06-Sep-01

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 <sup>2</sup> ) | Reporting Limit | Final Result                | Comments |
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|-----------------|-----------------------------|----------|
| 0172588           | 121                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 1848.48 ug/ft <sup>2</sup>  |          |
| 0172589           | 122                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 55.83 ug/ft <sup>2</sup>    |          |
| 0172590           | 123                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 154.98 ug/ft <sup>2</sup>   |          |
| 0172591           | 124                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 28974.53 ug/ft <sup>2</sup> |          |
| 0172592           | 125                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 1791.88 ug/ft <sup>2</sup>  |          |
| 0172593           | 126                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 5484.94 ug/ft <sup>2</sup>  |          |
| 0172594           | 127                  | Flame         | Wipe        | ****           | 1.000                         | 20.00           | 94.08 ug/ft <sup>2</sup>    |          |

Analysis Method for Flame (Wipes, Paints, Airls and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

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CERTIFICATE OF ANALYSIS

Client: LAE Consulting  
Address: 1218 Scattered Pine Court  
Severn, Maryland 21144  
Job Name: Red Springs, NC National Guard Armory  
Job Location: Not Provided  
Job Number: 06  
P.O. Number: Not Provided  
Chain Of Custody: 84602  
Date Analyzed: 09/07/2001  
Person Submitting: [REDACTED]

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 Color | Analyst ID | Comments |
|-------------------|-----------------|----------------|--------------------|-----------------|---------------------|------------------------|----------------------|--------------------|-----------------|-------------------|---------------|---------------------|--------------|------------|----------|
| 0172595           | 001FT           | NAD            | --                 | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 100                 | White        | WW         |          |
| 0172596           | 001M            | 2              | 2                  | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 98                  | Black        | WW         |          |
| 0172597           | 002FT           | 2              | 2                  | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 98                  | Brown        | WW         |          |
| 0172598           | 002M            | 2              | 2                  | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 98                  | Black        | WW         |          |
| 0172599           | 003             | 30             | 5                  | 25              | --                  | --                     | --                   | --                 | --              | --                | --            | 70                  | White        | WW         |          |
| 0172600           | 004FT           | 2              | 2                  | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 98                  | Green        | WW         |          |
| 0172601           | 004M            | 2              | 2                  | --              | --                  | --                     | --                   | --                 | --              | --                | --            | 98                  | Black        | WW         |          |

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"

Non-Responsive

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition 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.

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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

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Red Springs National Guard Armory,  
Red Springs North Carolina



HHC 1ST BN 252d Armor, Det 1 Red Springs National Guard Armory



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Views of Entrances of Rain and Water Puddles  
in the Red Springs Armory Drill Hall



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Views of Kitchen Broken and Missing Floor Tiles and  
Dated Mess Kitchen



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Views of Metal Security Grate in the Window  
Executive Officer's Office





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Down Range View of Indoor Firing Range



Up Range View of Indoor Firing Range

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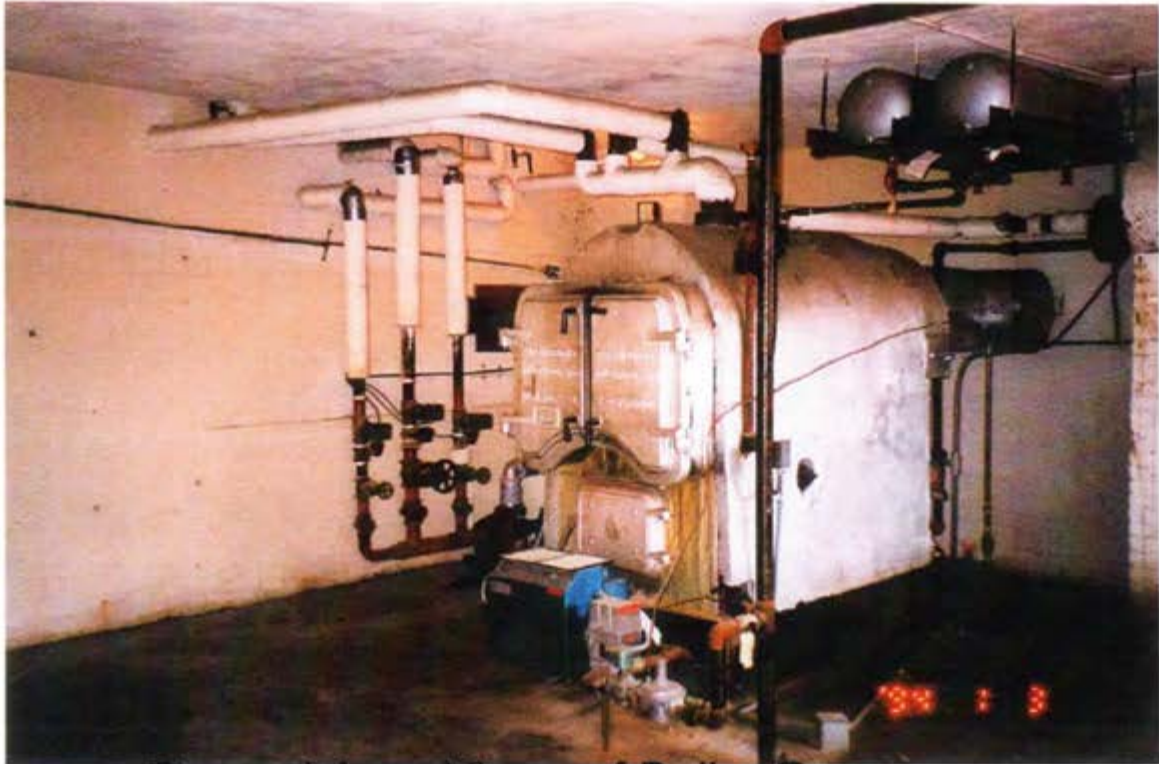


Views of Backstop, Range Pit ( Storage) and  
Access Panel of Deactivated IFR, Red Springs Armory



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General Area Views of Boiler Room,  
Red Springs NG Armory

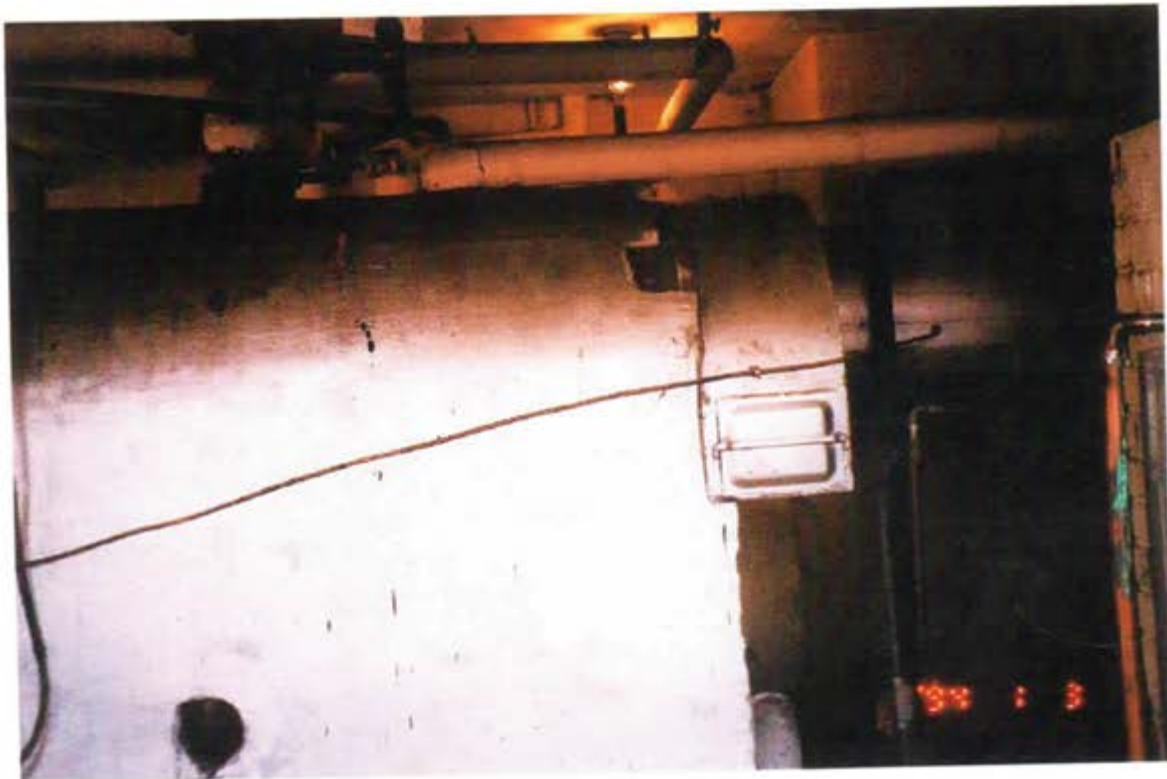




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Views of ACM on Boiler and Pipes



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Fire Ant Mound Located in Boiler Room,  
Red Springs NG Armory



Ice Machine Located in Boiler Room. Red Springs NG Armory

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Views of Cracked and Broken Floor Tiles Puddle  
Located in the Armory Drill Hall





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Views of Preexisting  
Exterior Damage of Building



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View of Paint Blistering and Peeling  
on Brick Interior of Drill Hall



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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|  |   |   |                                  |                                |
|--|---|---|----------------------------------|--------------------------------|
| ARLOC                                      | INSTALLATION<br>HHC 11252 d ARMOR, DET 1<br>RED SPRINGS, NC |   | BLDG/RM NO.<br>215 Roberts ST    |                                |
| LOCATION/CODE<br>(AA) Administrative Areas |   | OPERATION/CODE<br>PDO<br>ADMINISTRATION OPERATION |                                  |                                |
| SURVEY DATE<br>21 Aug 90                   |   | EVALUATOR (Initials)<br>LAE Consulting            |                                  |                                |
| MACOM/CODE<br>National Guard               | SUBMACOM/CODE   |   | SUPERVISOR<br>SSG Non-Responsive |                                |
| TELEPHONE/DSN NO.<br>Non-Responsive        | UNIT/ORGANIZATION<br>HHC 11252 d Armor,<br>DET 1            |   | RAC<br>4                         | FREQUENCY (hrs/day)<br>8 Hours |
| NO. CIV(S)                                 | NO. MIL<br>2 NG (ACTIVE)                                    | NO. CONTRACTOR(S)                                 | NO. LOC(S)                       | NO. OTHER                      |

## SECTION 2. FACILITY DATA

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| LAB HOODS<br>①        | VAPOR DEGREASERS<br>①   | SPRAY BOOTHS<br>①      |
| MAINTENANCE BAYS<br>① | OPEN SURFACE TANKS<br>① | VENTILATION UNITS<br>① |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |



## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE   | HAZARD DESCRIPTION            | PAC | EPC |
|------------|-------------------------------|-----|-----|
| 7439-92-1  | LEAD, INORGANIC DUSTS + Fumes | 1   |     |
| 12172-73-5 | ASBESTO (AMOSITE)             | 1   |     |
| 12001-29-5 | CHRYOTILE                     | 1   |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |
|            |                               |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME             | FIRST NAME | MI | SEX | SSN            | CATEGORY |
|-----------------------|------------|----|-----|----------------|----------|
| <b>Non-Responsive</b> |            | E  | M   | Non-Responsive | MIL      |
|                       |            | A  |     |                | MIL      |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |
|                       |            |    |     |                |          |

## SECTION 6. COMMENTS

☐ No comments☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

## Safety

### GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

#### CONTENTS (Listed by paragraph numbers)

|  | Para |
|--|------|
| Purpose                                | 1    |
| References                             | 2    |
| Explanation of abbreviations and terms | 3    |
| Policy and procedures                  | 4    |
| Goal                                   | 5    |
| Background                             | 6    |
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| Medical Surveillance                   | 12   |
| Worker Education                       | 13   |
| Personal Protective Equipment          | 14   |
| Point of Contact                       | 15   |

#### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.208
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

#### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USA-EHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, A Company 1<sup>st</sup> 119<sup>th</sup> Infantry, ATTN: **Non-Responsive**, 813 E. 14<sup>th</sup> Street, Roanoke Rapids, NC 28870.

SUBJECT: Industrial Hygiene Survey of the Roanoke Rapids National Guard Armory, Roanoke Rapids, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR **COMMERCIAL** **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (**Non-Responsive**) Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

565 GINGER CREEK RD  
FAYETTEVILLE, GA 30214

**Non-Responsive**

April 4, 2003

**Non-Responsive**

NC Army National Guard Armory  
813 E. 14<sup>th</sup> Street  
Roanoke Rapids, NC 28870

**RE: Baseline Industrial Hygiene Survey**



BEST AVAILABLE COPY

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**ROANOKE RAPIDS ARMORY**

**ROANOKE RAPIDS, NC**

**DATE:**

**FEBRUARY 24,2003**

**PREPARED BY**

**Non-Responsive**  
365 GINGER CREEK RD  
FAYETTEVILLE, GA 30214  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range

Attachment 3 Laboratory Reports: Supply air grills offices

Attachment 4 Photographs of the Facility

Attachment 5 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Roanoke Rapids Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Roanoke Rapids Armory.

The building was finished in 1982. The facility houses A Co. 1<sup>st</sup> 119<sup>th</sup> Infantry. The armory is used by the troops of A Co. 1<sup>st</sup> 119<sup>th</sup> Infantry for their monthly weekend drills.

The A Co. 1<sup>st</sup> 119<sup>th</sup> Infantry with 86 troops has 4 full time AGR personnel plus a recruiter at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30 PM. The facility houses administrative areas, a drill Hall, classrooms, a supply room, a weapons vault, a boiler room kitchen, a maintenance office and a deactivated Indoor Firing Range. The kitchen was not been used to cook for the troops at the time of the survey. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. There is generalized poor lighting through out the facility. Light measurements were below IES guidelines at the Readiness NCO Office (22FC at computer), Training NCO Office (35FC at computer), Administration NCO Office (17FC at computer), Recruiting Office (22FC at computer), Classroom, the Supply Room Office (15FC at computer, no windows in this room) and the CO-1<sup>st</sup> Sgt. Office. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, five to six hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. There are no windows or A/C in the Supply Sergeant office or in the Supply Room. The Supply sergeant reported that it gets very warm in the supply room in the summer.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes 2 2.5T trucks, 2 1.25T pick-up trucks one water buffalo and a cargo trailer. Only PMC are performed at the armory. When repairs are needed the vehicles are taken to the OMS #19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation and training classes on weekend drills. The Drill Hall is used to clean weapons about once a month. Tables are used for this purpose. Bay (Roll-up) door is kept open (weather permitting) when the weapons are cleaned and exhaust ventilators, located on the roof are turned on. At the time of the survey one of the exhaust ventilators was not working. Personnel require troops to wash hands after weapons cleaning. The Drill Hall is rented occasionally for wedding receptions, parties, wrestling and a circus. Renters bring their own food. The kitchen is not used for cooking on weekend drills.

#### **Boiler Room**

The boiler is a metal one that was installed when the armory was built in 1982. Personnel stated that the boiler works well. The pipes wrappings appear intact

with no fractures. No water leakage observed at the time of the survey. The facility has a new alarm, smoke detector and heat sensor installed in 2002.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area. There are supplies, training equipment, shelves (metal and wood) and desks. The floor is concrete. IFR was probably "sanitized" in the early 90's. Six swipe samples were taken from the IFR. Four of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

| <b>Sample Number</b> | <b>Sample Location</b>            | <b>Results</b> |
|----------------------|-----------------------------------|----------------|
| 1                    | Bullet backstop                   | 39700ug        |
| 2                    | Floor in front of bullet backstop | 64400ug        |
| 3                    | Item stored in IFR                | 247ug          |
| 4                    | Item stored in IFR                | 302ug          |
| 5                    | Wall next to entrance/exit door   | 78ug           |
| 6                    | Blank                             | BLR            |

#### **Weapons Vaults**

The Roanoke Rapids Armory has a weapon storage vault located in the Supply Room. The weapons list includes; M-16s, 9mm pistols, M-60s, M-249s, 240 Bravo, 50 Cal. machine guns MK-19s and sniper rifles. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about once a month in the Drill Hall with the doors open (weather permitting), and exhaust ventilators turned on, using tables that are set up in the Drill Hall.

### A/C System

Central A/C units are used to cool the administration offices and the classroom. The Supply Room does not have a central A/C unit. The filter was checked. Seven swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by personnel of the Armory, the classroom and the A/C filter. All samples were below the clearance level of 200 ug/ft<sup>2</sup>.

**Table 2**

| Sample Number | Sample Location      | Results |
|---------------|----------------------|---------|
| 11            | Readiness NCO Office | BRL     |
| 12            | Recruiter Office     | BRL     |
| 13            | Training NCO Office  | BRL     |
| 14            | Filter Supply Side   | 24ug    |
| 15            | Filter Fan Side      | 24ug    |
| 16            | Blank                | BLR     |
| 17            | Classroom            | BLR     |

### Material Safety Data Sheets

The armory has Material Safety Data Sheets (MSDS) Books. Personnel reported that the book was been updated at the time of the survey. There is a Hazardous Materials Inventory List present in the Flammables storage building located outside behind the building. This building is kept locked. Non-Responsive updates the MSDS Book when new products come in. Personnel stated that Non-Responsive has attended a Hazmat Training course.

### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3



**Table 3**

| <b>Location</b>                | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|--------------------------------|--|---|
| ADO Readiness NCO Office       | 25-54 (Avg. 35)                        | 50-100  |
| ADO Training NCO Office        | 35-54 (Avg. 45)                        | 50-100  |
| ADO Administration NCO Office  | 17-54 (Avg. 38)                        | 50-100  |
| Recruiting Office              | 22-30 (Avg. 26)                        | 50-100  |
| Classroom                      | 22-55 (Avg. 35)                        | 50-100  |
| ADO Supply Room (Office)       | 15-36 (Avg. 28)                        | 50-100  |
| ADO Supply Room (Storage)      | 17-20 (Avg. 18.5)                      | 20  |
| CO-1 <sup>st</sup> Sgt. Office | 25-46 (Avg. 34)                        | 50-100  |
| Drill Hall                     | 26-57 (Avg. 42)                        | 30  |

Light measurements were below IES guidelines at the Readiness NCO Office (22FC at computer), Training NCO Office (35FC at computer), Administration NCO Office (17FC at computer), Recruiting Office (22FC at computer), Classroom, the Supply Room Office (15FC at computer, no windows in this room) and the CO-1<sup>st</sup> Sgt. Office. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.

- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). There is generalized poor lighting through out the facility.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- The A/C filter should be replaced in a timely manner according to manufacturer recommendation.
- Recommend the installation of an A/C unit in the Supply Room. A request should be submitted to the appropriate state office for the acquisition and installation of the above-mentioned A/C unit for the Supply Room.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A work request should be submitted to the appropriate state office for the repair or replacement of the non-working air exhaust ventilator located in the Drill Hall if it has not been done yet.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

## SECTION 1.

## DEMOGRAPHIC DATA

BEST AVAILABLE COPY

a. ARLOC

37000

b. INSTALLATION

Roanoke Rapids NC Armory

c. BLOC/RM NUMBER

Training NCO  
Office

d. LOCATION/CODE

4A

e. OPERATION/CODE

400

f. DESCRIPTION

Training NCO, Computer unit, Gunner (rel)

g. MACOM/CODE

NG

h. TELEPHONE/AUTOVON NUMBER

Non-Responsive

i. SUPERVIS

Non-Responsive

m. NO CIV(S)

n. NO M

o. NO CONTRACTOR(S)

p. NO LOC(S)

q. NO OTHER

## SECTION 2.

## IH STAFFING DATA

a. LAB HOODS

b. VAPOR DEGREASERS

c. MAINTENANCE BAYS

d. SPRAY BOOT-S

e. OPEN SURFACE TANKS

f. VENTILATION UNITS

## SECTION 3.

## SURVEY DATA

g. SURVEY DATE

2-20-03

h. EVALUATOR (INITIALS)

Non-Responsive

| i. CONTROLS PRESENT | j. EVALUATION  | k. UNIT CODE | l. CONTROLS REQUIRED | m. STATUS |
|---------------------|----------------|--------------|----------------------|-----------|
| Righting            | 35-54: Avg. 45 | FC           | 50-100               | Imaght    |
|                     |                |              |                      |           |
|                     |                |              |                      |           |
|                     |                |              |                      |           |
|                     |                |              |                      |           |

## n. PERSONAL PROTECTIVE EQUIPMENT (R-REQUIRED; A-AVAILABLE)

1. RESPIRATOR

MANUFACTURER

NIOSH FC NO

R/A

DISPOSABLE

w/ FACE AIR PURIFYING

w/ FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT            | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|-------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS               | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS       | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES    | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNES     | /   | SAFETY/CONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                         |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                         |     |

## SECTION 4.

## HAZARD INVENTORY DATA

| a. CAS CODE | b. HAZARD DESCRIPTION                          | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED<br>YES/NO |
|-------------|--|---------------|---|
| POVBT       | Daily use of computer for long periods of time | 3             |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |
|             |  |               |   |



## HEALTH HAZARD INFORMATION MODULE FIELD SURVEY

\*SEE PRIVACY ACT STATEMENT ON REVERSE.  
(For use of this form, see HHIM User's Instructions.)

## SECTION 1. DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Roanoke Rapids NC Armory c. BLDG/RM NUMBER Adm. NCO  
d. LOCATION/CODE AA e. OPERATION/CODE ADD f. DESCRIPTION Payroll, Control Gallons, Inform. Computer work 5 hr/day  
g. MACOM/CODE NG h. SUPERVISOR Non-Responsive  
i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. RAC Non-Responsive k. FREQUENCY (Hrs Per Day) Non-Responsive  
l. NO CIV(S) Non-Responsive m. NO MIL Non-Responsive n. NO CONTRACTOR(S) Non-Responsive o. NO LOC(S) Non-Responsive p. NO OTHER Non-Responsive

## SECTION 2. IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOT-S Non-Responsive  
e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

## SECTION 3. SURVEY DATA

a. SURVEY DATE 2-24-03 b. EVALUATOR (INITIALS) Non-Responsive

| c. CONTROLS PRESENT | d. EVALUATION       | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS     |
|---------------------|---------------------|--------------|----------------------|---------------|
| <u>Lighting</u>     | <u>17-54; 17-38</u> | <u>FC</u>    | <u>50-100</u>        | <u>Inadeq</u> |
|                     |                     |              |                      |               |
|                     |                     |              |                      |               |
|                     |                     |              |                      |               |
|                     |                     |              |                      |               |

## h. PERSONAL PROTECTIVE EQUIPMENT (H=REQUIRED; A=AVAILABLE)

| 1. RESPIRATOR           | MANUFACTURER | NIOSH TC NO | R/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| W FACE AIR PURIFYING    |              |             |     |
| W FACE AIR PURIFYING    |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT              | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|---------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                 | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS         | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHCS       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNESS    | /   | SAFETY/NONCONDUCTIVE SHCS | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                           |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                           |     |

## SECTION 4. HAZARD INVENTORY DATA

| a. CAS CODE   | b. HAZARD DESCRIPTION                                  | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO) |
|---------------|--|---------------|---|
| <u>PO VDT</u> | <u>Daily use of computers for long periods of time</u> | <u>3</u>      |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |
|               |  |               |   |





SECTION 1.

DEMOGRAPHIC DATA

a. ARLOC 37000 b. INSTALLATION Roanoke Rapid Response Army c. BLDG/RM NUMBER Supply Kite Storage  
d. LOCATION/CODE Supply Sgt. Computer Work, bus phone. e. OPERATION/CODE \_\_\_\_\_ f. DESCRIPTION \_\_\_\_\_  
g. MACOM/CODE NG h. SUPERVISOR Non-Responsive  
i. TELEPHONE/AUTOVON NUMBER \_\_\_\_\_ j. FREQUENCY (Hrs Per Week) \_\_\_\_\_  
k. NO CIV(S) \_\_\_\_\_ l. NO MIL \_\_\_\_\_ m. NO CONTRACTOR(S) \_\_\_\_\_ n. NO LOC(S) \_\_\_\_\_ o. NO OTHER \_\_\_\_\_

SECTION 2.

IH STAFFING DATA

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOT(S) \_\_\_\_\_  
e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

SECTION 3.

SURVEY DATA

a. SURVEY DATE 2/24/03 b. EVALUATOR (INITIAL) Non-Responsive

| c. CONTROLS PRESENT      | d. EVALUATION           | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS        |
|--------------------------|-------------------------|--------------|----------------------|------------------|
| <u>Lighting - office</u> | <u>15-36; Aug 28</u>    | <u>FC</u>    | <u>50-100</u>        | <u>Scheduled</u> |
| <u>Supply - Storage</u>  | <u>17-20; Aug 29/30</u> | <u>FC</u>    | <u>20</u>            | <u>Adopt</u>     |
|                          |                         |              |                      |                  |
|                          |                         |              |                      |                  |

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

1. RESPIRATOR

DISPOSABLE

FACE AIR PURIFYING

FACE AIR PURIFYING

FULL FACE AIR PURIFYING

POWERED AIR PURIFYING

AIRLINE

SELF-CONTAINED

ABRASIVE BLASTING HOOD

MANUFACTURER

NIOSH TC NO

R/A

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNES     | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

SECTION 4.

HAZARD INVENTORY DATA

| a. CAS CODE          | b. HAZARD DESCRIPTION                           | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO) |
|----------------------|---|---------------|---|
| <u>NO VDT</u>        | <u>Daily max 8 computer for periods of time</u> | <u>3</u>      |   |
| <u>HEAVY LIFTING</u> | <u>Heavy lifting</u>                            | <u>3</u>      |   |
| <u>FOOT HAZ</u>      | <u>Falling objects</u>                          | <u>3</u>      |   |
|                      |   |               |   |
|                      |   |               |   |
|                      |   |               |   |
|                      |   |               |   |
|                      |   |               |   |
|                      |   |               |   |
|                      |   |               |   |

## SAMPLING DATA

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[illegible]

**SECTION 6.**

## PERSONNEL DATA

# Non-Responsive

[illegible]

SECTION 7.

COMMENTS (Add blank sheet of paper if necessary)

- ① Supply Sergeant
- ② Order, warehouse + distribute supplies
- ③ Control inventory + any security
- ④ all equipment, systems - the come to or may go through his office  
for all units
- ⑤ Computer work average 4-5 hrs/day
- ⑥ No health problems so far related to job.
- ⑦ Concern about not having A/C in supply room in his office
- ⑧ This office do not have any windows either

**• PRIVACY ACT STATEMENT**

Title 5 U.S. Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as a identification number. The purpose of this information is to identify and monitor data relating each VA civilian employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposure for any given worker.

*Disclosure of your Social Security Number is not mandatory; however, nondisclosure may result in untimely provision of proper medical monitoring.*

**Signature**

## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

|                    |                           |                       |                  |
|--------------------|---------------------------|-----------------------|------------------|
| <b>CLIENT:</b>     | Angel Guardiola           | <b>Lab Order:</b>     | 0304201          |
| <b>Project:</b>    | Roanoke Rapids, NC Armory | <b>Date Received:</b> | 4/7/2003 2:40:00 |
| <b>Project No:</b> |                           | <b>Matrix:</b>        | Wipe             |
| <b>PO No:</b>      |                           | <b>Analyst:</b>       | SSS              |

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF    | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|-------|----------------|---------------|
| 0304201-001A  | 1                | 39700   | µg, Total | 69.0 | 24.39 | 2/24/2003      | 4/9/2003      |
| 0304201-002A  | 2                | 64400   | µg, Total | 119  | 42    | 2/24/2003      | 4/9/2003      |
| 0304201-003A  | 3                | 247     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-004A  | 4                | 302     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-005A  | 5                | 78.0    | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-006A  | 6                | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-007A  | 11               | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-008A  | 12               | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-009A  | 13               | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-010A  | 14               | 24.0    | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-011A  | 15               | 24.0    | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-012A  | 16               | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |
| 0304201-013A  | 17               | BRL     | µg, Total | 2.83 | 1     | 2/24/2003      | 4/9/2003      |

Qualifiers: MDL - Method Detection Limit  
ND - Not Detected at the Reporting Limit

DF - Dilution Factor

Page 1 of 1



Roanoke Rapids, NC  
Armory







## Drill Hall







**IFR, Desks With  
Divisions**

**IFR Bullet  
Backstop**



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**IFR Front View**

**IFR Rear View**





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## IFR Sampling Areas





**A/C Outlet Grill  
Classroom**

**A/C Outlet Grill  
Office**



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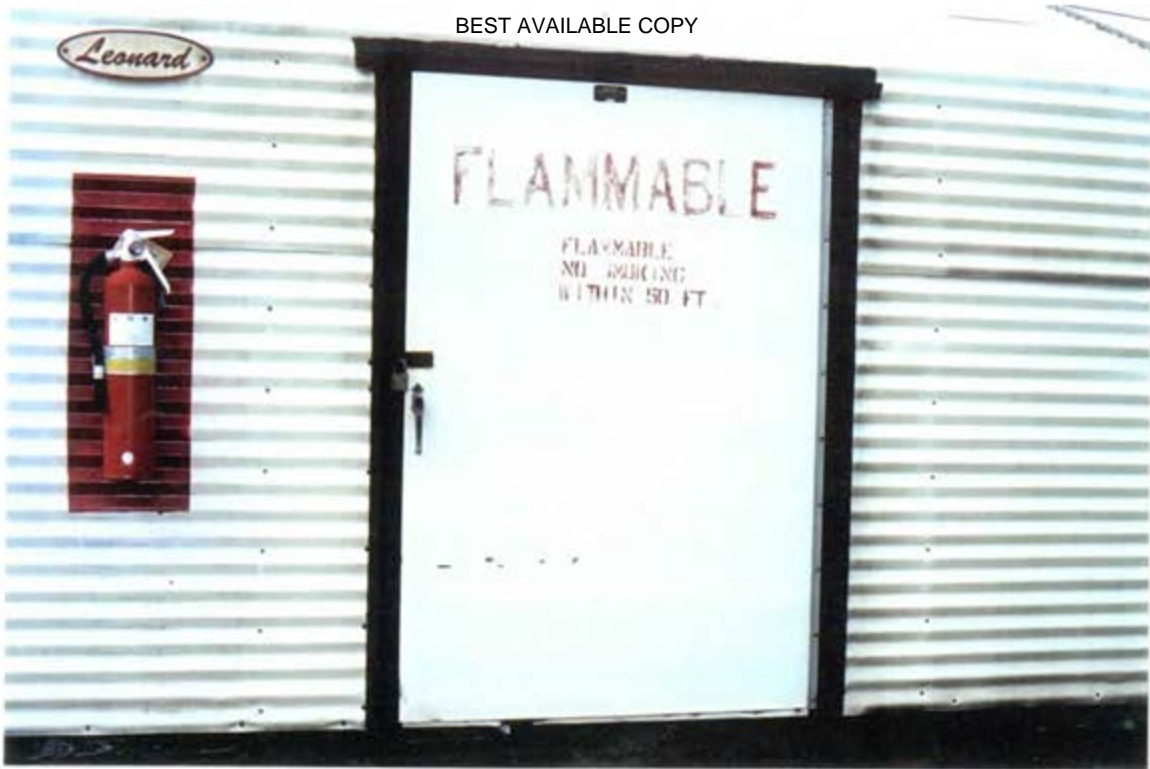


**A/C Unit Filter**

**Heating Grill**







**Flammables  
Cabinet**

**Boiler**

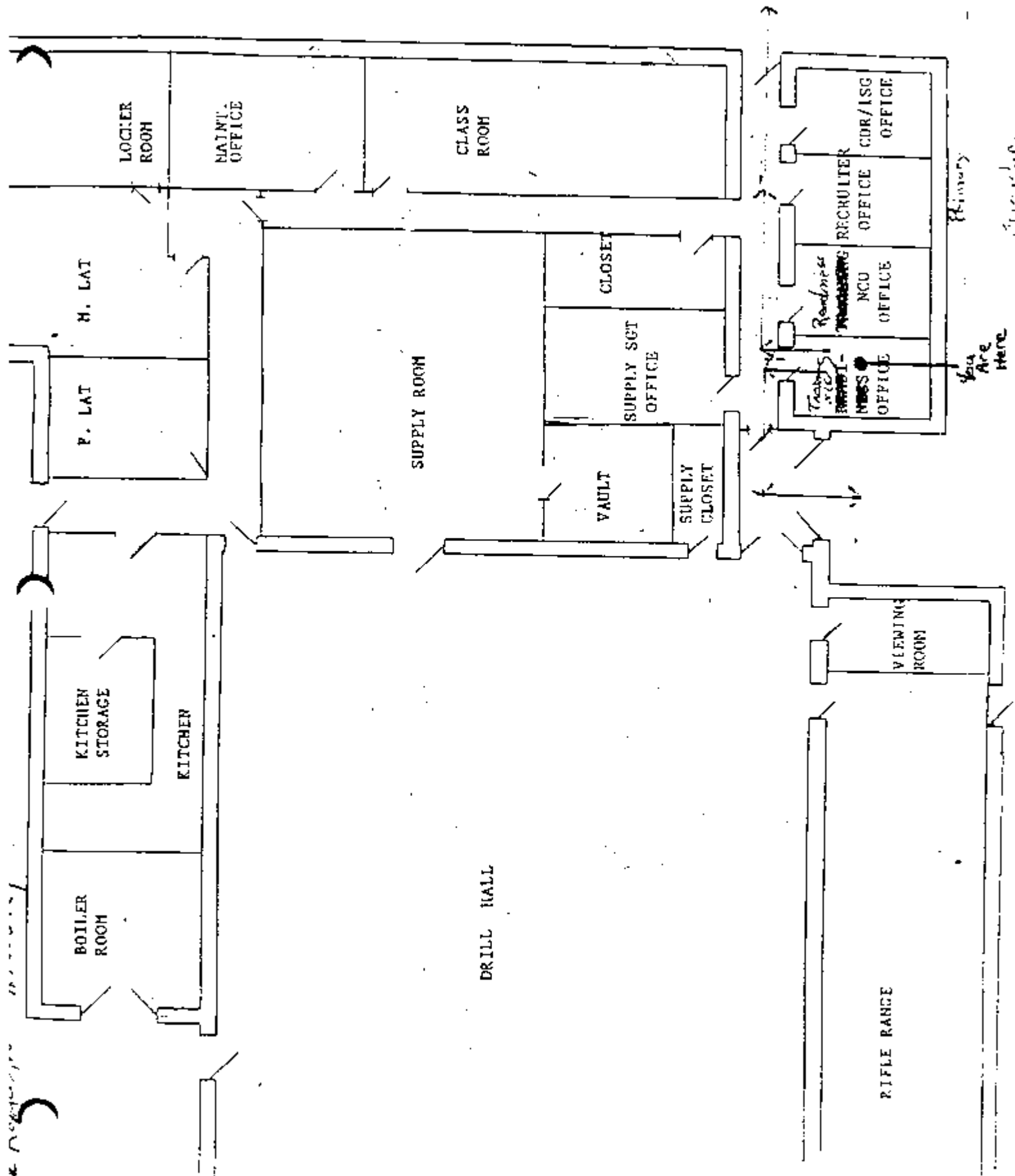






## Motor Pool





**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

October 23, 2001

MEMORANDUM FOR The North Carolina Army National Guard, A Company (-) 105<sup>th</sup> Engineer Battalion, ATTN: SFC [Non-Responsive] P.O BOX 787, Rockingham, North Carolina, 28379-0787.

SUBJECT: Industrial Hygiene Survey of the Rockingham National Guard Armory, Rockingham, North Carolina.

1. References.

- a. Report submitted 18 September 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. [Non-Responsive] of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

September 18, 2001

MEMORANDUM FOR: Company A Company (-) 105<sup>th</sup> Engineer Battalion, ATTN:  
SFC **Non-Responsive** PO Box 787, Rockingham, North Carolina, 28379-0787

SUBJECT: Industrial Hygiene Survey of Rockingham National Guard Armory,  
Rockingham, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Rockingham NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe sample at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.

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SUBJECT: Industrial Hygiene Survey of Rockingham National Guard Armory, Rockingham, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Rockingham National Guard Armory in Rockingham, North Carolina on 23 August 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the A Co (-) 105<sup>th</sup> Engineer Battalion. The Armory has Three full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 1700. The Armory is utilized for drills on the weekend. The building was constructed around 1950. The facility houses six administrative areas, one kitchen/mess hall, three classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room and an Converted Indoor Firing Range.

5. Findings.

a. A Deactivated Indoor firing Range has been converted into a storage area. Office supplies seasonal holiday decorations, Thermal/ insulated containers (Silver Bullets), and excess weapons racks other excess items are stored in this area. The range floor is mad of concrete. Acoustic Material is still in place on walls. A ½ inch crack is located in the Pit area of range were the backstop meets the Pit floor. Colonies of Ants are in the cracks and on the backstop of the range pit. The Exhaust system for this area is operable. The Range was deactivated and cleared, June 20, 1996. Nine bags of sand weighing approximately 18,252 lbs. were removed. Six wipe samples were taken (Table 1). Three of the six samples were above the clearance level of 200-mg/fts<sup>2</sup> indicated in reference g (enclosure 3 and 6).

TABLE 1

| Sample Number | Sample Location                            | Results          |
|---------------|--|------------------|
| 133           | Left Side of Backstop 7 Ft from Pit Floor  | 893.13mg/ sg ft  |
| 134           | Middle of Backstop 4 Ft from Pit Floor     | 3378.54 mg/sg ft |
| 135           | Right Side of Backstop 2 Ft from Pit Floor | 56.98mg/sg ft    |
| 136           | Rear of concrete Pit Floor near Backstop   | 661.16 mg/sg ft  |
| 137           | Front of Pit Floor                         | 114.77 mg/sg ft  |
| 138           | Outside of Entrance into Range (Floor)     | 34.76 mg/sg ft   |

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Rockingham National Guard Armory,  
Rockingham, North Carolina

b. Material Safety Data Sheets (MSDS) were on file and readily available on chemicals that are and are not in use by this Armory. MSDSs were not available for a few cleaning compounds. The Readiness NCO is in the process of updating the MSDSs. Personnel have not received Hazard Communication Program Training. The Supply NCO has received Hazardous Waste Training.

c. The Supply room houses an Arms room, Communication equipment storage room and TA 50/ CIF area. The areas were visually surveyed and personnel interviewed. RADAC meters/ alarms and Chemical detector units and other items with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was posted on the entrances to these areas. Personnel stated that accountability and issuing of weapons is performed in the Arms room. There is no ventilation system located within the Arms room. Weapons are repaired in the Arms room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. Dehumidifier was not on. Personnel stated that organization communication repair has not been conducted in the Communication Equipment storage room. OMS #10 provides the support for Communication equipment repair. A Spill Kit for Large Spills was stored in the Supply Room.

d. The Drill Hall is used primarily for drills. Vehicle maintenance is being performed in this area. Personnel stated basic vehicle checks and maintenance is performed on three HUMMVs.

e. Petroleum, Oil and Lubricants (POLs) are stored in a building located outside in the motorpool area. A fire extinguisher is within reach. No Smoking signs are posted. The floor of the building has a self contained sealed containment for possible spillage or leakage of POLs.

f. The classrooms, Armory Drill Hall (ceiling) and the ceiling in the kitchen (exhaust fan) have preexisting water damage. Water has leaked from the roof where the flat roof meets the Armory walls, and from the roof of the Drill Hall.

g. The vinyl floor tiles in the kitchen were found missing. Analysis for Asbestos was not conducted on the tiles.

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1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Rockingham National Guard Armory,  
Rockingham, North Carolina

b. A large metal outside storage Building is located at the rear of the building. The building has two egresses. Tents, equipment, and excess items are stored in this secure building.

6. Recommendations

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/sq ft (reference g.), consider performing addition lead wipe sampling. Consider discontinuing the use of this area as a maintenance bay until further evaluation of the facilities ventilation system is performed. Contact the North Carolina Occupational Safety and Health office for technical assistance.

b. Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. A need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

c. Discontinue to weapons maintenance inside the Arms room. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Include Radioactive items on the chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office. NOTE: Soldering is an operation that is usually performed in a Communication repair shop/area. If this facility considers performing, soldering operations contact the North Carolina Occupational Safety and Health Office for technical assistance in ventilation requirements.

d. Discontinue the use of the Drill Hall as a motor vehicle maintenance bay. Vehicle maintenance should be performed outside the building were ventilation is adequate and there is no risk of Carbon Monoxide fumes entering through the Armories ventilation system.

L&E Consulting  
1318 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Rockingham National Guard Armory,  
Rockingham, North Carolina

e. Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance. The need for Hazard Communication Training should be addresses with the North Carolina Occupational Safety and Health office.

f. Cosmetic repairs maybe needed if leaks have been repaired. A follow up by the Engineering Office in conjunction with the Safety Office is recommended too ensure corrective actions have been taken.

g. Floor tiles were not analyzed for presents of Asbestos. Continue to wet mop kitchen floors. Avoid breaking tiles. Do not handle broken tiles. Contact the North Carolina Safety and Occupational Health office for further assistance.

h. There are no deficiencies associated with this building. Building was identified in this report for Health Hazard Information purposes only.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

6 Encl.

1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

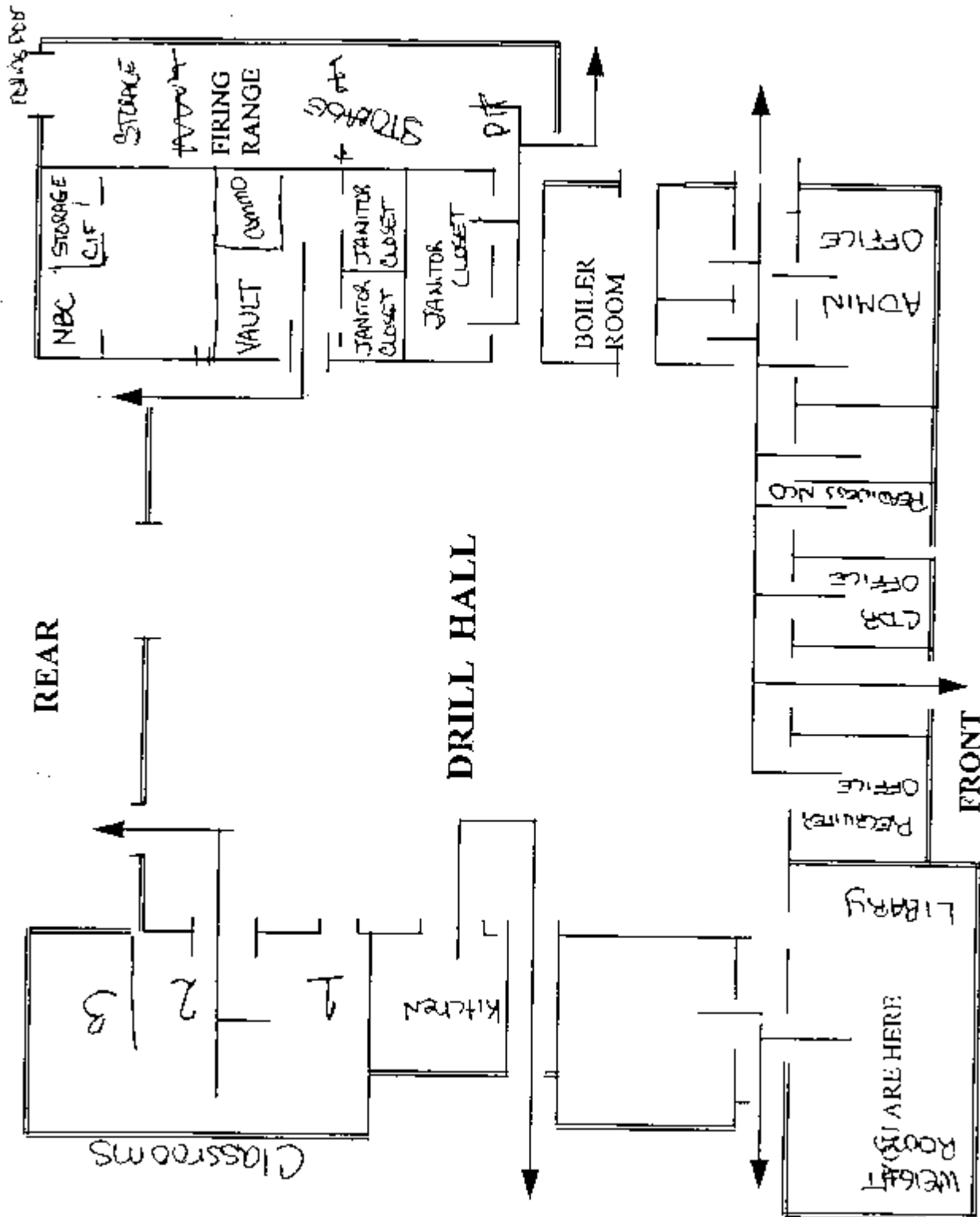
**Non-Responsive**

LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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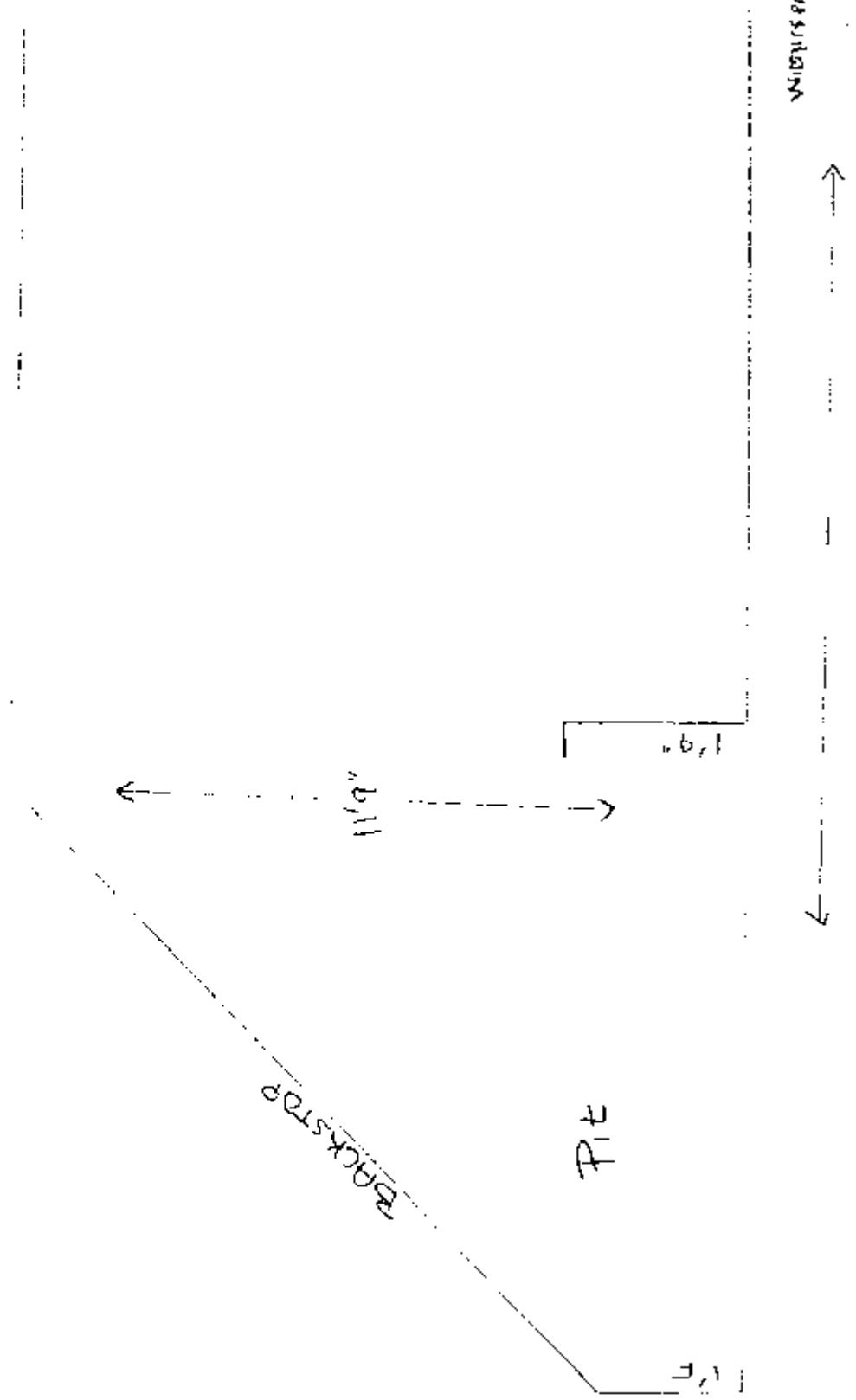
# FIRE EVACUATION PLAN

IN CASE OF FIRE DIAL 895-3111 Or 911

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Rockingham National Guard Armory



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**Client:** LAE Consulting **Job Name:** Roekingham, NC National Guard Armory **Chain Of Custody:** 84605  
**Address:** 1218 Scattered Pine Court **Job Location:** Not Provided **Date Analyzed:** 9/6/01  
 Severn, Maryland 21144 **Job Number:** 08 **Person Submitting:** [REDACTED]  
**P.O. Number:** Not Provided **Report Date:** 06-Sep-01

**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 |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|----------------|----------|
| 0172617           | 133                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 893.13 ug/ft²  |          |
| 0172618           | 134                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 3378.54 ug/ft² |          |
| 0172619           | 135                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 56.98 ug/ft²   |          |
| 0172620           | 136                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 661.16 ug/ft²  |          |
| 0172621           | 137                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 114.77 ug/ft²  |          |
| 0172622           | 138                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 34.76 ug/ft²   |          |
| 0172623           | 139                  | Flame         | Wipe Blank  | ****           | N/A              | 20.00 ug        | < 20.00 ug     |          |

Analysis Method for Flame (Wipes, Paints, Airs and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

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Rockingham North Carolina National Guard Armory  
A Company (minus) 105th Engineer Battalion



Excess and Tentage Storage Building

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View Down Range of Converted  
Deactivated Indoor Firing Range/Storage Area



View Up Range of Storage And Overhead Door of  
Deactivated Indoor Firing Range

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Petroleum, Oil and Lubricant Storage Building



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Views of Water Damage of Ceiling in Drill Hall



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Water Damage located on  
the Ceiling inside of Classrooms



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Missing Floor Tiles in Mess Kitchen



Water Damage Around Exhaust Vent in Mess Kitchen

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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |  |                                  |
|-------------------------------------|--|----------------------------------|
| ARLOC                               | INSTALLATION<br>Brockingham N.G. Armory    | BLDG/RM NO.<br>1207 Brockham     |
| LOCATION/CODE<br>AA                 | OPERATION/CODE<br>Admin                    |                                  |
| SURVEY DATE<br>23 Aug 01            | EVALUATOR (Initials)<br>LAE LAE Consulting |                                  |
| MACOM/CODE<br>N.G.                  | SUBMACOM/CODE                              | SUPERVISOR<br>SFC Non-Responsive |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>ACOL(-) 105th Eng BN  | RAC<br>4                         |
| NO. CIV(S)                          | NO. MIL<br>3 NG (Active)                   | FREQUENCY (hrs/day)<br>8-10      |
| NO. CONTRACTOR(S)                   | NO. LOC(S)                                 | NO. OTHER                        |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
| GMV              |            | ACH/FPM   |                   |        |
| LEV              |            | CFM/FPM   |                   |        |
| Lighting         |            | FTC       |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
| Cotton glove    | /   | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING Goggles  | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
| Welding goggles  | /   | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             |     |

## SECTION 4: HAZARD INVENTORY DATA

[illegible]

## SECTION 5. PERSONNEL DATA

| SECTION 5. PERSONNEL DATA |            |    |     |                       |          |
|---------------------------|------------|----|-----|-----------------------|----------|
| LAST NAME                 | FIRST NAME | MI | SEX | SSN                   | CATEGORY |
| <b>Non-Responsive</b>     |            | L  | M   | <b>Non-Responsive</b> | SFC/MIL  |
|                           |            | E  | M   |                       | SGT/MIL  |
|                           |            |    | M   |                       | BSG /MIL |
|                           |            |    |     |                       |          |
|                           |            |    |     |                       |          |
|                           |            |    |     |                       |          |
|                           |            |    |     |                       |          |
|                           |            |    |     |                       |          |
|                           |            |    |     |                       |          |

**SECTION 6. COMMENTS**

No comments.

## SECTION 6. COMMENTS

☐ No comments

☒ See attached sheet

PRIVACY ACT STATEMENT

**PRIVACY ACT STATEMENT**

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

MOS.

MOS: .  
JOB SERIES:



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HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

## Safety

# GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

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## Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. DODI 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).

## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard, Detachment 3,  
Headquarters Company STARC, ATTN: **Non-Responsive** 600 Walnut Street, Rocky  
Mount, North Carolina, 27803.

SUBJECT: Industrial Hygiene Survey of the Rocky Mount National Guard Armory,  
Rocky Mount, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Use the report to help in correcting all deficiencies noted by the contractor.
- c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is / to be sent

# Non-Responsive

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**LAE Consulting**

1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

7 June 2002

MEMORANDUM FOR: Detachment 3, Headquarters Company STARC, ATTN: [Redacted]  
[Redacted] 0 Walnut Street, Rocky Mount, North Carolina, 27803

SUBJECT: Industrial Hygiene Survey of Rocky Mount National Guard Armory, Rocky Mount, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Rocky Mount NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

SUBJECT: Industrial Hygiene Survey of Rocky Mount National Guard Armory, Rocky Mount, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, **Non-Responsive** of LAE Consulting conducted an industrial hygiene survey at the Rocky Mount National Guard Armory in Rocky Mount, North Carolina on 22 May 2002.

4. Facility Description. This facility currently houses the HQ Company STARC. The unit will be moving into the Washington, NC Armory September 2002 and an MP unit (unit designation unknown) will be occupying this Armory. The Armory has ten full time personnel. The Armory is primarily an administrative Use Armory. The G level staff works out of this Armory during weekend drills. The soldier performs administrative duties Monday through Friday between 0800 and 2000 hours. The Armory is utilized for drills on the weekend. The building was constructed in the 1950s. The facility houses twenty administrative areas, one kitchen, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room. The inventory of buildings was given attention during this survey since the operation will be changing in the near future.

5. Findings.

a. A deactivated Indoor Firing Range was converted into a two storage areas and a weight room. 6 inch walls separate the spaces. A wall was constructed at the front of the range pit. The range's original acoustic material is present on the walls. The storage area floors are concrete and the weight room floor is carpeted. The range was decontaminated and cleared December 13, 1995. Five bags of sand weighing 10,140 pounds was removed. Because the pit area was inaccessible samples were taken from the ceiling baffles and walls. Four wipe samples for Lead were taken (Table 1). Two of the four samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3).

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1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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**SUBJECT: Industrial Hygiene Survey of Rocky Mount National Guard Armory, Rocky Mount, North Carolina**

**Table 1**

| <b>Sample Number</b> | <b>Sample Location</b>                                 | <b>Results</b>         |
|----------------------|--|------------------------|
| 193                  | Ceiling Baffle in storage near former pit              | 8400ug/ft <sup>2</sup> |
| 194                  | Acoustic wall 3 <sup>rd</sup> panel from entrance door | <20 ug/ft <sup>2</sup> |
| 195                  | 2 <sup>nd</sup> Ceiling baffle in weight room          | 580 ug/ft <sup>2</sup> |
| 196                  | Right wall in storage area                             | <20 ug/ft <sup>2</sup> |

b. The Arms room is located within the Supply room. A dehumidifier was not present. Only accountability and issuing of weapons is performed. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. The Readiness NCO was educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

c. The Drill Hall is used primarily for drills. The Hall is rented to the general population. Leaking has occurred under the rolling door and adjacent doors during hard rains. Vehicle maintenance is not performed in this area.

d. A Hazardous material building is located at the rear of the Armory. It is unknown if the unit will be taken this building to there new location. A few chemicals are stored in the building.

e. A storage building which was the former Organizational Maintenance Shop is located near the Armory. The building stores the unit's excess furniture and lawn equipment. The Readiness NCO states that the building has bad wiring and needs a lot of upgrading.

f. A Quonset hut located near the armory was the former Armory. The hut is currently used for storage.

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Telephone: (410) 551-2717

SUBJECT: Industrial Hygiene Survey of Rocky Mount National Guard Armory, Rocky Mount, North Carolina

6. Recommendations.

a. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling.

b. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition.

c. Contact the North Carolina Occupational Health and Safety Office for technical guidance if considering relocation of the Hazard Material building.

d. Consider purchasing a storage building that is suitable for storage of POLs. The building at a minimum should have catchments in the floor and rated for chemical and flammable storage. Dispose of all chemicals that are not currently used. Further assistance for disposal may be obtained from the USPFO, NC, and Hazardous Waste Office.

e. Ensure that former OMS building and Quonset hut is updated prior to occupying for any future operations. Contact the North Carolina, Engineering office for assistance on local building/remodeling codes.

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1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Rocky Mount National Guard Armory, Rocky Mount, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**Non-Responsive**

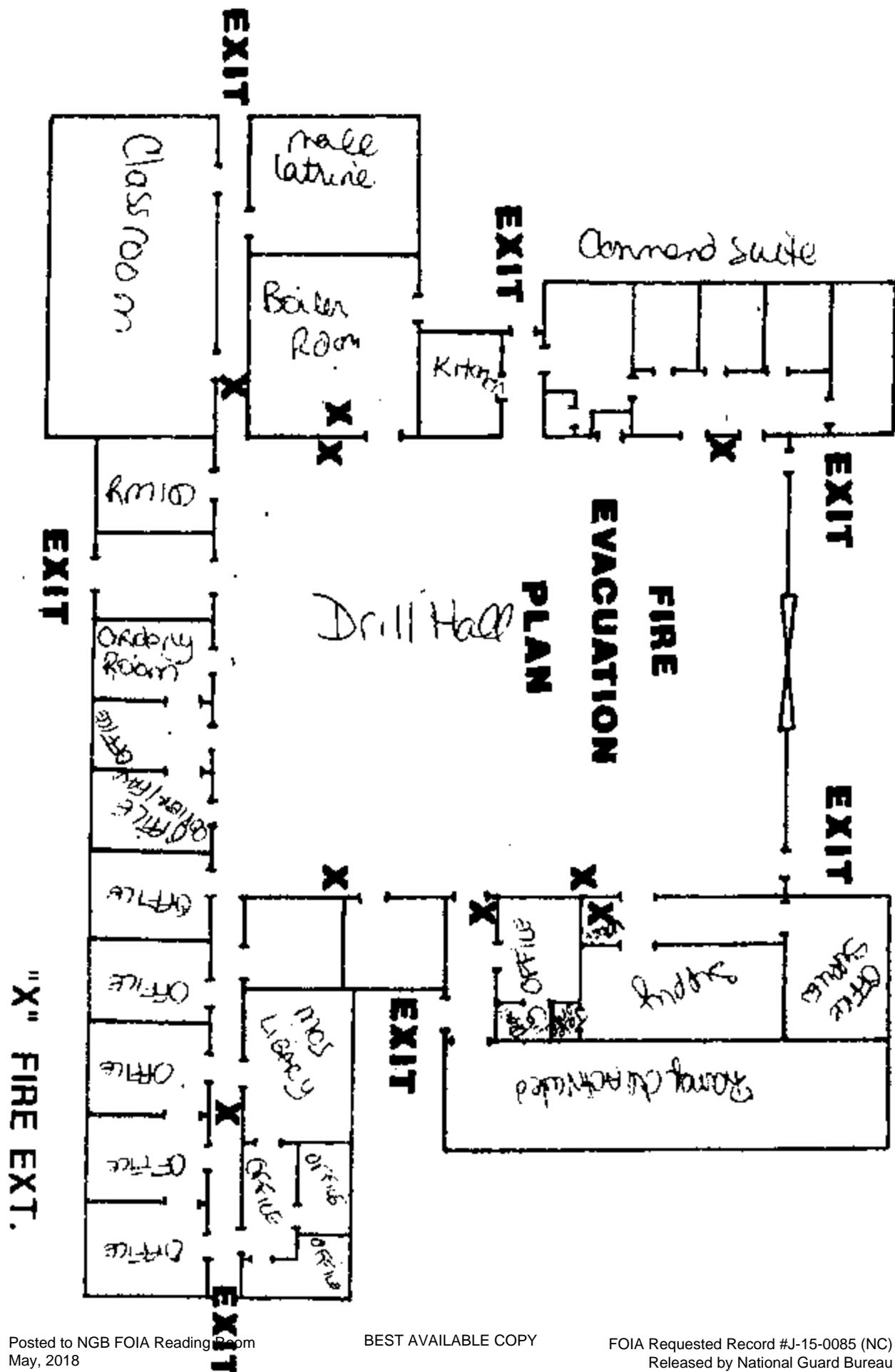
4 Encl

1. Building Diagram
2. HHIM
3. Facility Photos
4. Lead Wipe Results

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 5



# AMA Analytical Services, Inc.

Division of Analytical Laboratory Services

## CERTIFICATE OF ANALYSIS

NV LAP  
NY ELAP  
AIHA

**Client:** LAB Consulting  
**Address:** 1218 Scattered Pine Court  
Savannah, Maryland 21144

**Job Name:** Rocky Mount, N.C. National Guard Army  
**Job Location:** Not Provided  
**Job Number:** Not Provided  
**P.O. Number:** Not Provided

**Chain of Custody:** 88416  
**Date Analyzed:** 05/10/2002  
**Person Submitting:** [Redacted]  
**Report Date:** 30-May-02

### Summary of Atomic Absorption Analysis for Lead

Page 1 of 1

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| AMA Sample Number | Client Sample Number | Analyte Type | Sample Type | Air Volume (L) | Air Flow (ft <sup>3</sup> ) | Reporting Limit         | Final Result           | Comments |
|-------------------|----------------------|--------------|-------------|----------------|-----------------------------|-------------------------|------------------------|----------|
| 0251880           | 193                  | Flame        | Wipe        | ****           | 1,000                       | 20.00 ug/l <sup>a</sup> | 8400 ug/l <sup>a</sup> |          |
| 0251881           | 194                  | Flame        | Wipe        | ****           | 1,000                       | 20.00 ug/l <sup>a</sup> | 20 ug/l <sup>a</sup>   |          |
| 0251882           | 195                  | Flame        | Wipe        | ****           | 1,000                       | 20.00 ug/l <sup>a</sup> | 580 ug/l <sup>a</sup>  |          |
| 0251883           | 196                  | Flame        | Wipe        | ****           | 1,000                       | 20.00 ug/l <sup>a</sup> | 20 ug/l <sup>a</sup>   |          |

**Analysis Method for Flame (Wipes, Paints, Aids and Sol/Solids):** EPA 8000-R-93-2000(M)-7420  
**Analysis Method for Furnace:** Air: EPA 8000-R-93-2000(M)-7421, Water: EPA 200.9  
**N/A = Not Applicable**  
**% 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.

Analyte

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 any other sample. As a matter of protection to clients, the public and those 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 approval from us. Sample types, locations and collection procedures are based upon the information provided by the person 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. Accidental sample material will be discarded in accordance with the appropriate regulatory guidelines, unless otherwise requested by the client. NVLAP Accreditation applies only to polymerized IR microscopy of both samples and transmission electron microscopy of AHA/PCA air samples.

AMA Analytical Services, Inc., 11111 N. 11th St., Suite 100, Scottsdale, AZ 85260-1111, (480) 350-2630 • Fax (480) 350-2631 • E-mail: info@ama-analytical.com

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Front and Rear Views of Rocky Mount, NC  
National Guard Armory







Up and Down Range Views of Converted  
Deactivated Indoor Firing Range





Storage building a former OMS Shop



Quonsa Hut used for storage





Exterior and Interior Views of  
Hazmat Storage Building





HVAC Unit Area used for  
Paper and Administative Storage Area

# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |   |                                  |
|-------------------------------------|---|----------------------------------|
| ARLOC                               | INSTALLATION<br>Rocky Mount, North Carolina | BLDG/RM NO.<br>600 West Street   |
| LOCATION/CODE<br>AA                 | OPERATION/CODE                              |                                  |
| SURVEY DATE<br>22 May 02            | EVALUATOR (Initials)<br>Non-Responsive      |                                  |
| MACOM/CODE                          | SUBMACOM/CODE                               | SUPERVISOR<br>Non-Responsive     |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>Det 3, HQ STARC        | RAC<br>4                         |
|                                     | NO. CONTRACTOR(S)<br>10                     | FREQUENCY (hrs/day)<br>8 hrs/day |
|                                     | NO. LOC(S)                                  | NO. OTHER                        |

## SECTION 2. FACILITY DATA

|                  |                    |                           |
|------------------|--------------------|---------------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS              |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS<br>6 mv |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

Safety

GUIDELINES FOR CONVERTING  
INDOOR FIRING RANGES TO OTHER USES

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Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
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- D. OSHA Instruction CPL 2-2208
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
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Glossary

- 1. Purpose  
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- 2. References  
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  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TO 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

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Your sample media may not be capable of collecting additional lead dust and results that are above 200,000 micrograms/sq ft should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 micrograms/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## MEMORANDUM FOR Commander, North Carolina National Guard Armories

SUBJECT: Personnel Listing for Health Hazard Evaluation/Survey

## 1. Authority:

- a. AR 40-5, Preventive Medicine, 15 Oct 90.
- b. Code of Federal regulation (CFR), Title 29, Part 1910, 1 Jul 1990.
- c. Executive Order 12196, DoD Compliance with CFR 29 CFR 1910, 26 Feb 1980.
- d. DoD Directive 6050.5; 6055.1-3,5;
- e. DoD Instructions on Compliance with CFR Title 29, Part 1910.

2. The Health Hazard Evaluation is currently being conducted by Lisa A. Evans, LAE Consulting, Severn, Maryland.

3. A personnel Listing is requested for completion of surveys. Please fill in the information below for all employees working full time at this Armory.

Det 3, HQ STARC.

Rocky Mount, North Carolina

| SSN            | LAST NAME | FIRST NAME | MI | SEX | CTV/ | MOS/TOP |
|----------------|-----------|------------|----|-----|------|---------|
| Non-Responsive |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |
|                |           |            |    |     |      |         |

LAE Consulting  
 1218 Scattered Pines Court, Severn, Maryland 21144  
 Telephone: (410) 551-2717

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 11, 2001

MEMORANDUM FOR The North Carolina Army National Guard Detachment 1, Bravo Company 1/120<sup>th</sup> Infantry Battalion (Mechanized) ATTN: SSG **Non-Responsive** 112 W. Highway 24, Roseboro, North Carolina 28382.

SUBJECT: Industrial Hygiene Survey of the Roseboro National Guard Armory, Roseboro, North Carolina.

1. References.

- a. Report submitted 21 November 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. **Non-Responsive** of LAE Consulting conducted the survey.



3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR

COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive**), Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.





**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

November 21, 2001

MEMORANDUM FOR: Detachment 1, Bravo Company 1/120<sup>th</sup> Infantry Battalion  
(Mechanized), ATTN: SSG **Non-Responsive** 112 W. Highway 24, Roseboro, North  
Carolina, 28382

SUBJECT: Industrial Hygiene Survey of Roseboro National Guard Armory, Roseboro,  
North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Roseboro NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe sample at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.



SUBJECT: Industrial Hygiene Survey of Roseboro National Guard Armory,  
Roseboro, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Roseboro National Guard Armory in Roseboro, North Carolina on 17 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the Detachment 1, Co B 1/120 Infantry. The Armory will have a new unit designation November 1, 2001. The new unit will be 196<sup>th</sup> Cavalry (Scout). The Armory has one full time soldier. The soldier performs administrative duties as the Readiness NCO Monday through Friday between 0800 and 1700. The soldier holds the MOS 11M. The Armory is utilized for drills on the weekend. The building was constructed around 1970. The facility houses five administrative areas, one kitchen/mess hall, one classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage building, an Arms Room and a Converted Indoor Firing Range.

5. Findings.

a. A deactivated Indoor firing Range has been converted into a maintenance platoon's storage area, Weight room, and Commo platoon locker area. The partitioned walls are made of wood and a 2x4 inch metal screening. The range floor is made of concrete. Acoustic Material is still in place on walls. Racks storing glass cleaners, scouring powder, sponges and a reference library is located near the range pit. The space at the rear of the range near the overhead-rolling door is used as a Weight room area. The range backstop has been repainted. The range was deactivated and cleared, July 31, 1996. Seventeen bags of sand weighing approximately 34,672 lbs. were removed. Five wipe samples were taken (Table 1). Four of the five samples were above the clearance level of 200-mg/ftsq indicated in reference g (enclosure 3 and 6).

TABLE 1

| Sample Number | Sample Location                            | Results                     |
|---------------|--|-----------------------------|
| 155           | Left Side of Backstop 7 Ft from Pit Floor  | 37.40 mg/ ft <sup>2</sup>   |
| 156           | Middle of Backstop 4 Ft from Pit Floor     | 280.48 mg/ ft <sup>2</sup>  |
| 157           | Right Side of Backstop 2 Ft from Pit Floor | 436.30 mg/ ft <sup>2</sup>  |
| 158           | Rear of concrete Pit Floor near Backstop   | 1367.83 mg/ ft <sup>2</sup> |
| 158           | Front of Pit Floor                         | 559.26 mg/ ft <sup>2</sup>  |

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**SUBJECT: Industrial Hygiene Survey of Roseboro National Guard Armory,  
Roseboro, North Carolina**

b. Material Safety Data Sheets (MSDS) were not readily available on chemicals that are in use by this Armory. Some MSDSs were found in the POL storage building. The Readiness NCO has not received Hazard Communication Training.

c. The Supply room houses an Arms room and TA 50/ CIF area. The areas were visually surveyed and personnel interviewed. RADAC meters/ alarms and Chemical detector units and other items with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was posted on the entrances to these areas. Personnel stated that accountability and issuing of weapons is performed in the Arms room. There was no evidence of weapons repair seen in this room. There is no ventilation system located within the Arms room. An Armor comes from Lumberton once a month. Dehumidifier was not on. The paint on the brick walls of the Arms room was blistered.

d. The Drill Hall is used primarily for drills. Visual examination and interview with the Readiness NCO indicated no apparent vehicle maintenance being performed in this area.

e. Petroleum, Oil and Lubricants (POLs) are stored in a metal utility building located outside in the motorpool area. Lube oil, paint, lighter fluid, floor wax, weed eater, and lawn mower. A fire extinguisher is within reach. No Smoking signs are posted.

f. The classroom ceiling tiles and the ceiling in the kitchen (exhaust fan) have a preexisting water damage.

g. The floor tiles in the kitchen were found broken and missing. Analysis for Asbestos was not conducted on the tiles.

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**SUBJECT: Industrial Hygiene Survey of Roseboro National Guard Armory,  
Roseboro, North Carolina**

**6. Recommendations.**

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling. Consider discontinuing the use of this area as a maintenance bay until further evaluation of the facilities ventilation system is performed. Contact the North Carolina Occupational Safety and Health office for technical assistance.

b. An inventory of the chemicals used by this facility should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the NC, OSHO.

c. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Include radioactive items on the chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay. Vehicle maintenance should be performed outside the building were ventilation is adequate and there is no risk of Carbon Monoxide fumes entering through the Armories ventilation system.

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SUBJECT: Industrial Hygiene Survey of Roseboro National Guard Armory,  
Roseboro, North Carolina

e. Ensure an inventory of all chemicals is conducted in the POL building. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

f. Cosmetic repairs maybe needed if leaks have been repaired. A follow up by the Engineering Office in conjunction with the Safety Office is recommended too ensure corrective actions have been taken.

g. Floor tiles were not analyzed for presents of Asbestos. Continue to wet mop kitchen floors. Avoid breaking tiles. Do not handle broken tiles. Contact the North Carolina Safety and Occupational Health office for further assistance.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

6 Encl.

1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

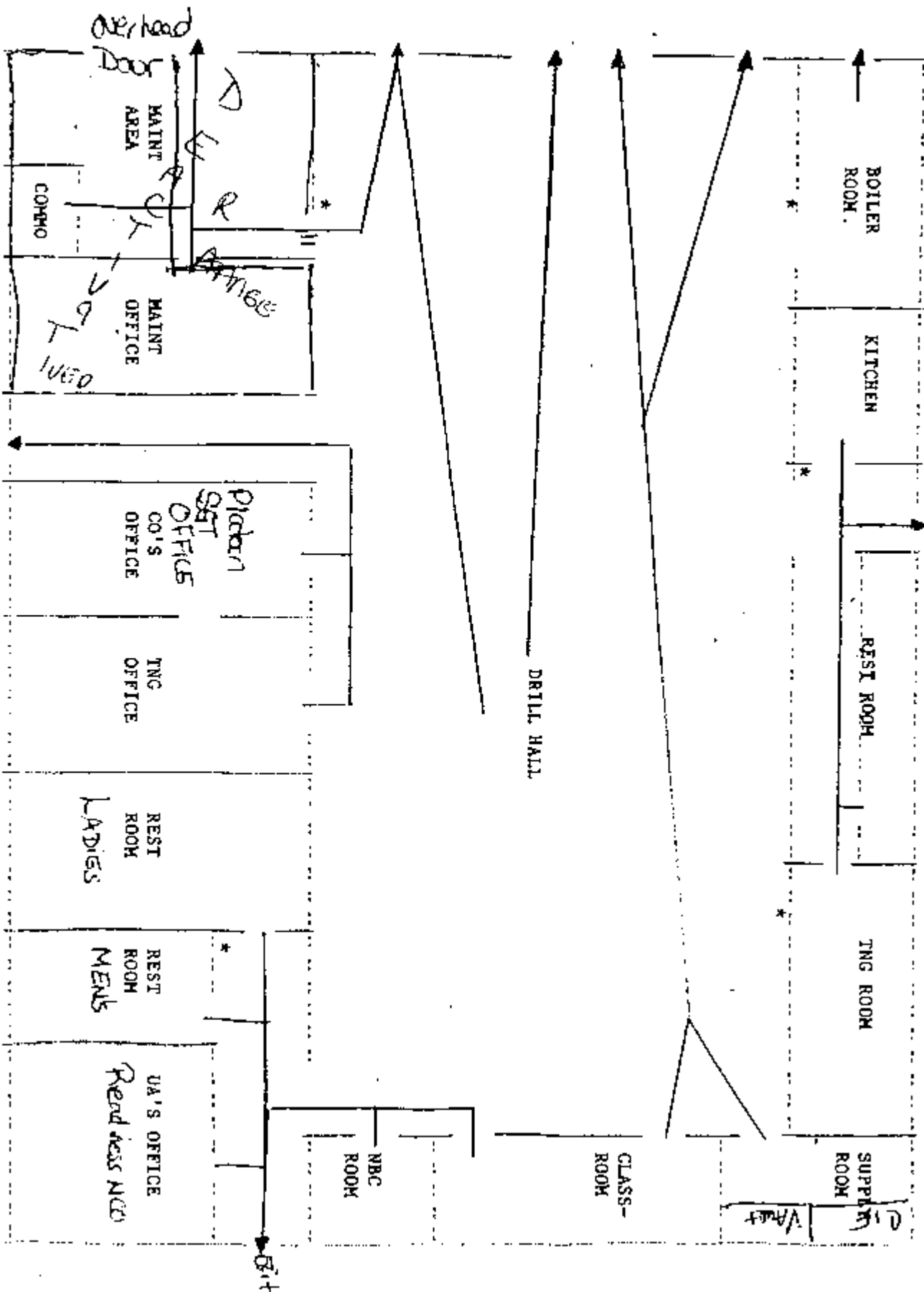
**Non-Responsive**

LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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FIRE EXIT PLAN

\* INDICATES FIRE EXTINGUISHER

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**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting  
**Address:** 1218 Scattered Pine Court  
Severn, Maryland 21144

**Job Name:** Roseboro National Guard Armory  
**Job Location:** Not Provided  
**Job Number:** Not Provided  
**P.O. Number:** Not Provided

**Chain Of Custody:** 88403  
**Date Analyzed:** 11/13/2001  
**Person Submitting:** [Redacted]  
**Report Date:** 13-Nov-01

**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 (ft <sup>2</sup> ) | Reporting Limit          | Final Result               | Comments |
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|--------------------------|----------------------------|----------|
| 0210786           | 155                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 37.40 ug/ft <sup>2</sup>   |          |
| 0210787           | 156                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 280.48 ug/ft <sup>2</sup>  |          |
| 0210788           | 157                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 436.30 ug/ft <sup>2</sup>  |          |
| 0210789           | 158                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 1367.83 ug/ft <sup>2</sup> |          |
| 0210790           | 159                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 559.26 ug/ft <sup>2</sup>  |          |

Analysis Method for Flame (Wipes, Paints, Airs and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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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Detachment 1, Co B 1/20 Infantry (Mechanized)  
Roseboro National Guard Armory, North Carolina



Rear view of Roseboro National Guard Armory

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Downrange view of Converted Indoor Firing Range



Uprange view from range Pit of  
Converted Indoor Firing Range

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## Downrange views of Converted Indoor Firing Range



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Damaged Ceiling in Kitchen/Mess in Armory



Damaged/Missing Floor Tile in the Kitchen/Mess

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Views of Damage Ceiling Tiles In the Classroom









Exterior and Interior Views of POL Storage Building





# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |   |                                  |
|-------------------------------------|---|----------------------------------|
| ARLOC                               | INSTALLATION<br>Roseboro Army   | BLDG/RM NO.<br>112 W. Hwy 24     |
| LOCATION/CODE<br>AA                 | OPERATION/CODE<br>Adm   |                                  |
| SURVEY DATE<br>17 Oct 01            | EVALUATOR (Initials)<br>Non-Responsive                                      |                                  |
| MACOM/CODE                          | SUBMACOM/CODE   | SUPERVISOR<br>SSG Non-Responsive |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>DET 1 Co B 11201st (mech)<br>1 Nov - 196th CAV (Scout) | RAC<br>4                         |
| NO. CIV(S)                          | NO. MIL<br>1  | NO. CONTRACTOR(S)                |
|                                     |   | NO. LOC(S)                       |
|                                     |   | NO. OTHER                        |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |

## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE  | HAZARD DESCRIPTION | PAC | EPC |
|-----------|--------------------|-----|-----|
| POLYBEOIL | POLS               | 4   |     |
|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |
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|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |
|           |                    |     |     |

## SECTION 5. PERSONNEL DATA

11M

| LAST NAME      | FIRST NAME | MI | SEX | SSN            | CATEGORY |
|----------------|------------|----|-----|----------------|----------|
| Non-Responsive |            | C  | M   | Non-Responsive | AGR, SSN |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |

## SECTION 6. COMMENTS

☐ No comments☐ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

### Safety

## GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

### CONTENTS (Listed by paragraph numbers)

|  | Para |
|--|------|
| 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 Protective Equipment          | 14   |
| Point of Contact                       | 15   |

### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).



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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 micrograms/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhered to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Det 2, 725<sup>th</sup> QM (POL), ATTN: **Non-Responsive** 911 Junior High School Road, Scotland Neck, NC 27874.

SUBJECT: Industrial Hygiene Survey of the Scotland Neck National Guard Armory, Scotland Neck, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

- a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.
- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

#### 4. Recommendations.

- a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.
- b. Use the report to help in correcting all deficiencies noted by the contractor.
- c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**
- d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.
- e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact Regional Industrial Hygienist, ARNG-IHS, [REDACTED] OR [REDACTED]

# Non-Responsive

CF: State Safety Office, NC, ATTN: AGSO Occupational Safety  
and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

**583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214**

**Non-Responsive**

April 4, 2003

**Non-Responsive**

**NC Army National Guard Armory  
911 Junior High School Rd.  
Scotland Neck, NC 27874**

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**SCOTLAND NECK ARMORY**

**SCOTLAND NECK, NC**

**DATE:**

**FEBRUARY 25, 2003**

**PREPARED BY**

**Non-Responsive**  
**583 GINGER CAKE RD**  
**FAYETTEVILLE, GA 30214**  
**Non-Responsive**

## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

**Attachment 1 HHIM Forms**

**Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range**

**Attachment 3 Laboratory Reports: Supply air grills offices**

**Attachment 4 Photographs of the Facility**

**Attachment 5 Schematic Drawing of Facility**

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Scotland Neck Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform ventilation, illumination and noise survey and to make recommendations regarding health hazards associated with the work at the Scotland Neck Armory.

The building was finished around 1979. The facility houses Detachment 2, 725<sup>th</sup> QM (POL). The armory is used by the troops of Detachment 2, 725<sup>th</sup> QM (POL) for their monthly weekend drills.

The Detachment 2, 725<sup>th</sup> QM (POL) with 46 troops has 1 full time AGR personnel at the time of the survey. The AGR employees are assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a drill Hall, classrooms, a supply room, a weapons vault, a boiler room, a kitchen, and a deactivated Indoor Firing Range. The kitchen was not been used to cook for the troops at the time of the survey. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility. There is generalized poor lighting throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- SPER SCIENTIFIC Light Meter



### 3.0 FINDINGS

#### **Illumination**

Illumination levels were recorded in administration offices, classroom, the drill hall and the supply room. Light measurements were below IES guidelines at the Supply Room. There were 3 light fixtures (2 bulbs each, 48" long) out in the Supply Room. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can in the long run lead to eyestrain and hand/wrist soreness. Non-Responsive responsibilities include Readiness NCO, payroll, military records and supply.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes 3 HUMMWV vehicles, 7 5T trucks and a forklift vehicle. Only PMC are performed at the armory. When repairs are needed the vehicles are taken to the OMS #19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation on weekend drills. The Drill Hall is used to clean weapons about twice a year. Tables are used for this purpose. Rags and brushes are used during this procedure. Bay (Roll-up) door are not opened when the weapons are cleaned. Air exhaust ventilators, located on the roof, are turned on. Troops are advised to wash hands after weapons cleaning. The Drill Hall is rented occasionally for wedding receptions. Renters bring their own food. The kitchen is not used for cooking on weekend drills. They use catering services.

#### **Boiler Room**

The boiler is a metal one that uses propane gas from a tank located outside the building. Personnel stated that the boiler works well. The pipes wrappings appear intact with no fractures. No water leakage observed at the time of the survey.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) has been converted into a storage area. There are metal shelves tables, equipment, chairs and a riding lawn mower. The

floor is concrete. Original acoustic material is present on the walls. Not known when the IFR was deactivated or "sanitized". Six swipe samples were taken from the IFR. Four of the six samples were above the clearance level of 200ug/ft2. See table 1 for results.

**Table 1**

| <b>Sample Number</b> | <b>Sample Location</b>            | <b>Results</b> |
|----------------------|-----------------------------------|----------------|
| 41                   | Bullet backstop                   | 57700ug        |
| 42                   | Floor in front of bullet backstop | 688ug          |
| 43                   | Item stored in IFR                | 186ug          |
| 44                   | Item stored in IFR                | 375ug          |
| 45                   | Wall next to entrance/exit door   | 208ug          |
| 46                   | Blank                             | BLR            |

### **Weapons Vault**

The Scotland Neck Armory has a weapon storage vault located in the Supply Room. The weapons list includes only M-16s. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned about twice a year in the Drill Hall with the air exhaust ventilators turned on, using tables that are set up in the Drill Hall. The dehumidifier in the weapons vault was not working the day of the survey. It was tested and still did not run. It needs to be replaced. AGR employee was advised.

### **A/C System**

Central A/C units are used to cool the administration offices the classrooms and a hallway. The Supply Room does not have a central A/C unit. Neither of the units had a filter installed the day of the survey. Personnel did not know how long the units had been without filters (See pictures). Six swipe samples for Lead (Table 2) were collected from the supply air grills in the offices occupied by personnel of

the Armory and the classrooms. All samples were below the clearance level of 200 ug/ft<sup>2</sup>.

**Table 2**

| <b>Sample Number</b> | <b>Sample Location</b> | <b>Results</b> |
|----------------------|------------------------|----------------|
| 51                   | Readiness NCO Office   | 26ug           |
| 52                   | Copying Room           | 24ug           |
| 53                   | PH Sgt. Office         | 25ug           |
| 54                   | Classroom              | 20ug           |
| 55                   | Classroom              | BLR            |
| 56                   | Blank                  | BLR            |

#### **Material Safety Data Sheets**

The MSDS Book is located in the Readiness NCO Office. A private contractor organized the MSDS Book the day before this survey. The book contains MSDS for hazardous materials and household goods. There is a locked oil shed inside the fenced Motor Pool. It has lubricants, oils and lawn care equipment. The warning sign outside the oil shed has completely faded away. There is no Hazardous Materials Inventory List present in the oil shed.

#### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3.

**Table 3**

| <b>Location</b>           | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|---------------------------|--|---|
| ADO Readiness NCO Office  | 63-78 (Avg. 70)                        | 50-100  |
| ADO Copying Room          | 48-88 (Avg. 68)                        | 50-100  |
| Classrooms                | 59-83 (Avg. 69)                        | 50-100  |
| ADO Supply Room (Storage) | 4-27 (Avg. 17)                         | 20  |
| Sgt. Office               | 53-125 (Avg. 84)                       | 50-100  |
| Drill Hall                | 19-75 (Avg. 45)                        | 30  |

Light measurements were below IES guidelines at the Supply Room with 3 light fixtures (2 bulbs each, 48" long) out. The other areas tested were within IES minimum standards. Consideration should be given to provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.

- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

Non-Responsive

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Replace burned out light fixtures in the Supply Room.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Install A/C filters in the units if it not has been done already. The A/C filter should be replaced in a timely manner according to manufacturer recommendation.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A request should be re-submitted to the appropriate state office to obtain a new dehumidifier to replace the non-working one in the Weapons Vault if it has not bee replaced yet.
- A Hazardous Materials Inventory List with current MSDS forms should be developed and placed in the Oil Shed. A new Hazardous Materials warning sign should made and place outside the Oil Shed.
- Ensure that personnel and troops have knowledge of the location of the MSDS book. And is enrolled hazardous materials safety training.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.



\*SEE PRIVACY ACT STATEMENT ON REVERSE.

(For use of this form, see instructions.)

## SECTION 1.

## DEMOGRAPHIC DATA

a. ARLOC 37 000 b. INSTALLATION Scotland Neck, NC. Armory c. BLDG/RM NUMBER Reuben WCO office  
 d. LOCATION/CODE AT e. OPERATION/CODE 400 f. DESCRIPTION Reuben WCO, payroll, military records, supply, computer work about 4-5 hrs/day  
 g. MACOM/CODE NG h. SUBMACOM/CODE 1 i. SUPERVISOR Non-Responsive  
 j. TELEPHONE/AUTOVON NUMBER Non-Responsive k. RAC Non-Responsive l. FREQUENCY (Hrs Per Day) Non-Responsive  
 m. NO CIV(S) Non-Responsive n. NO MIL Non-Responsive o. NO CONTRACTOR(S) Non-Responsive p. NO LOC(S) Non-Responsive q. NO OTHER Non-Responsive

## SECTION 2.

## IH STAFFING DATA

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTH(S) Non-Responsive  
 e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

## SECTION 3.

## SURVEY DATA

a. SURVEY DATE 2-25-03 b. EVALUATOR (INITIALS) Non-Responsive

| c. CONTROLS PRESENT | d. EVALUATION | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS |
|---------------------|---------------|--------------|----------------------|-----------|
| Lighting office     | 6-378; Aug 20 | FC           | 30-100               | Adgt      |
| Supply storage      | 4-27; Aug 17  | FC           | 20                   | Adgt      |
|                     |               |              |                      |           |
|                     |               |              |                      |           |
|                     |               |              |                      |           |

## h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

| 1. RESPIRATOR           | MANUFACTURER | NIOSH FC NO | R/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FACE AIR PURIFYING      |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNES     | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

## SECTION 4.

## HAZARD INVENTORY DATA

| a. CAS CODE | b. HAZARD DESCRIPTION                                 | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO) |
|-------------|---|---------------|---|
| PO VDT      | Continuous use of computers for long periods of time. | 3             |   |
| PO LIFTING  | Heavy lifting   | 2             |   |
| PO FOOT HAZ | Falling objects                                       | 3             |   |
|             |   |               |   |
|             |   |               |   |
|             |   |               |   |
|             |   |               |   |
|             |   |               |   |
|             |   |               |   |



## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: Scotland Neck, NC Armory  
 Project No:  
 PO No:

Lab Order: 0304199  
 Date Received: 4/7/2003 2:40:00  
 Matrix: Wipe  
 Analyst: SSS

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF   | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|------|----------------|---------------|
| 0304199-001A  | 41               | 57700   | µg, Total | 113  | 40.1 | 2/25/2003      | 4/9/2003      |
| 0304199-002A  | 42               | 688     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-003A  | 43               | 186     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-004A  | 44               | 375     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-005A  | 45               | 208     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-006A  | 46               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-007A  | 51               | 26.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-008A  | 52               | 24.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-009A  | 53               | 25.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-010A  | 54               | 20.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-011A  | 55               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304199-012A  | 56               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |

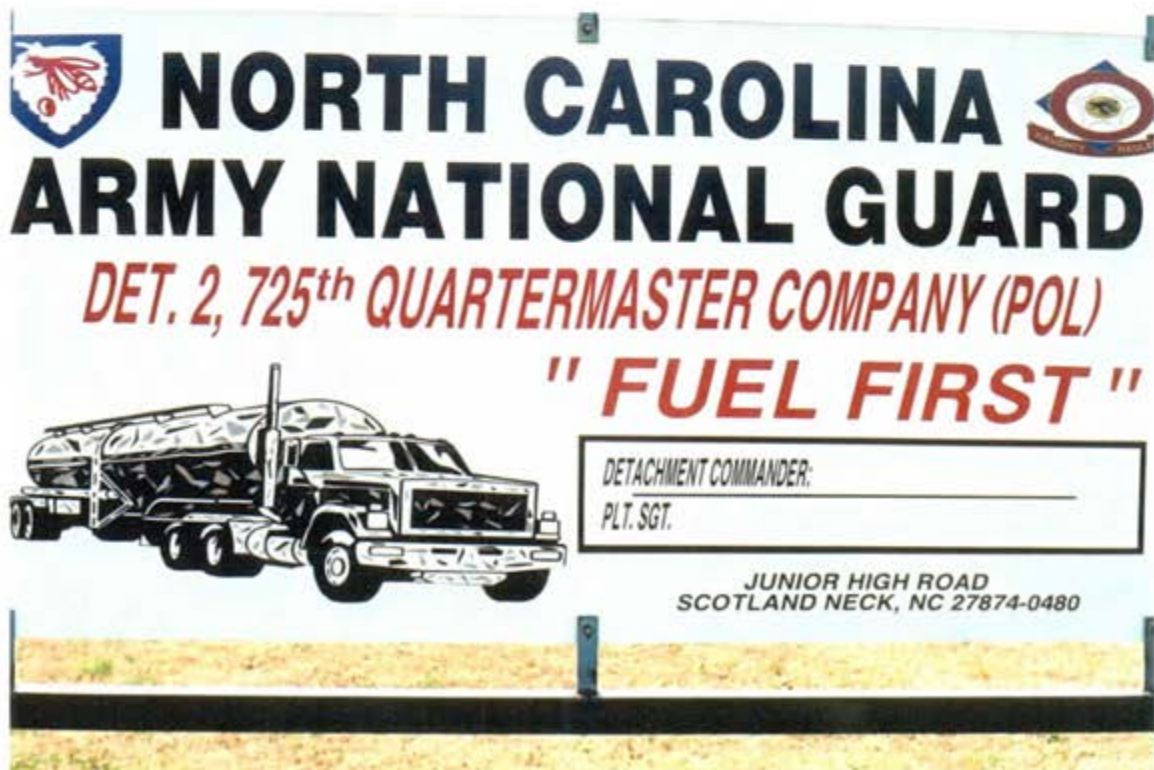
Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor

Page 1 of 1



Scotland Neck, NC  
Armory

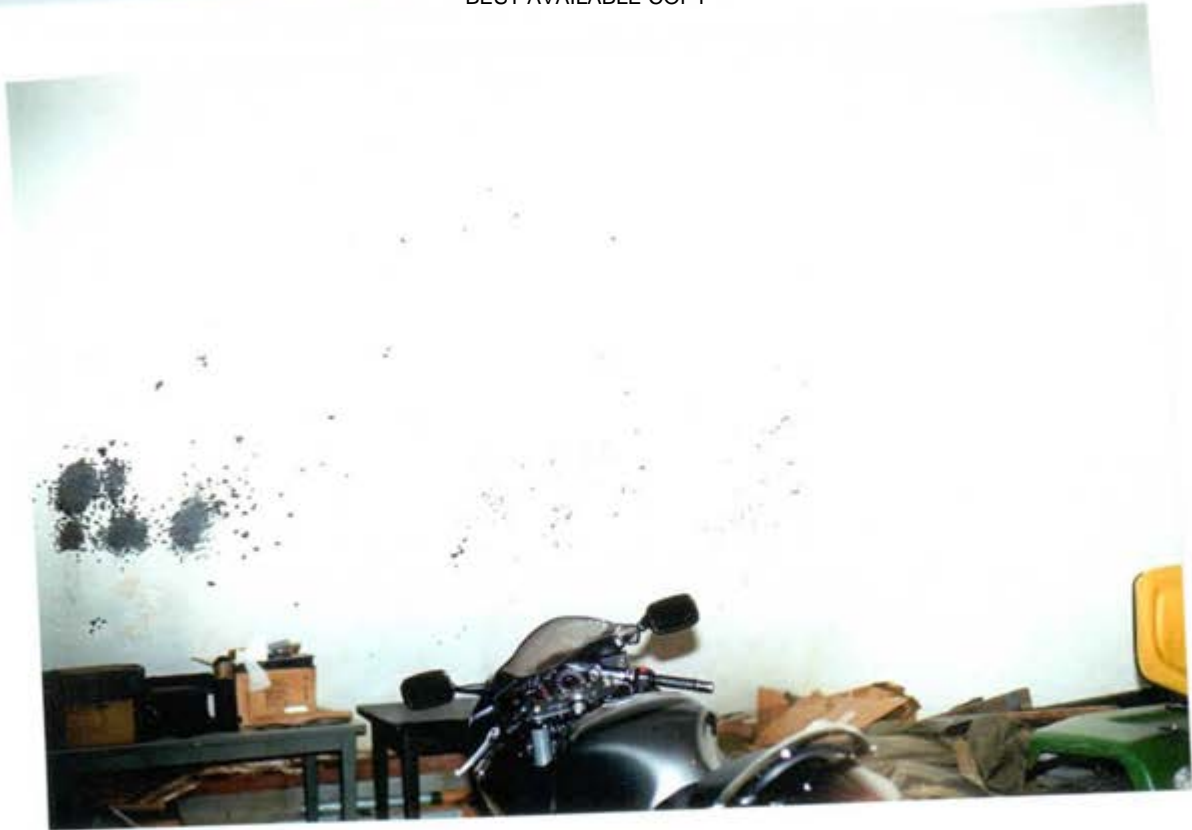






**Drill Hall**





**IFR, Front View**

**IFR, Rear View**







**IFR, Bullet  
Backstop**

**IFR, Sampling  
Areas**



BEST AVAILABLE COPY



**A/C Outlet Grill  
Readiness NCO Office**

**A/C Outlet Grill  
Classroom**



BEST AVAILABLE COPY



**A/C-Heating Unit  
No Filter present**



**Boiler**



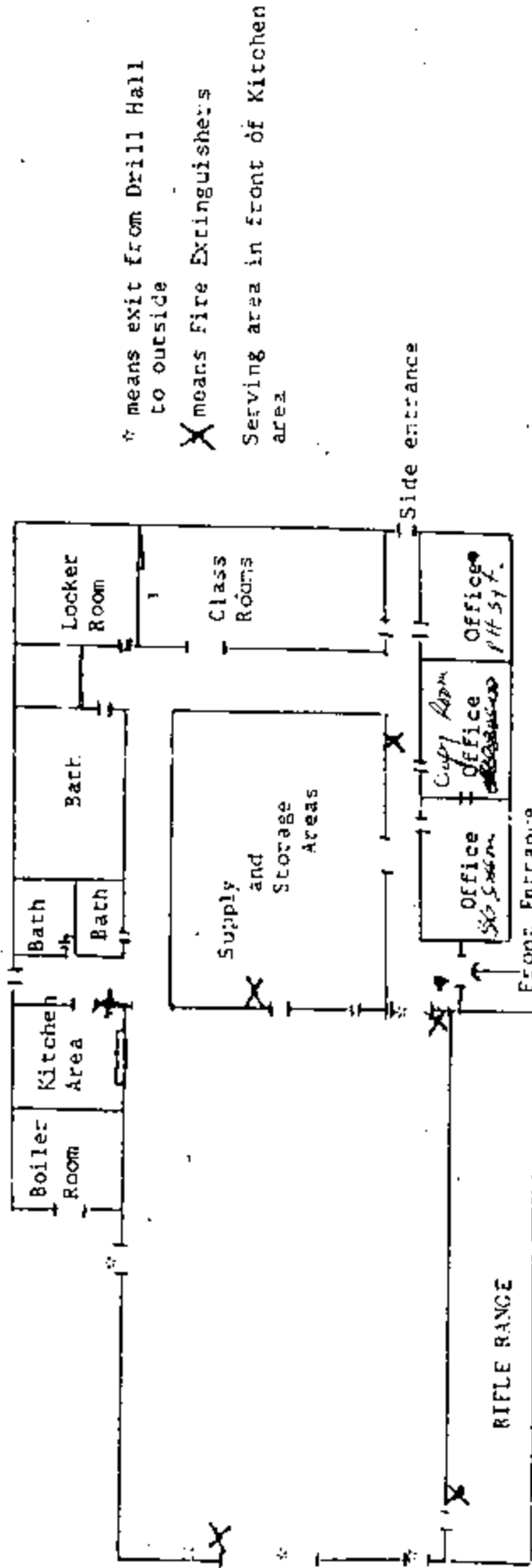


**Motor Pool**

**Oil Shed**



LAYOUT OF INTERIOR AREA OF THE NATIONAL GUARD ARMORY  
SCOTLAND NECK NORTH CAROLINA



*Scotland Neck NC Armory*

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 07, 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company C (-)  
1/119<sup>th</sup> Infantry (Mechanized), ATTN: SSG **Non-Responsive** P.O. BOX 300, Smithfield,  
North Carolina 27577-0300.

SUBJECT: Industrial Hygiene Survey of the Smithfield National Guard Armory,  
Smithfield, North Carolina.

1. References.

- a. Report submitted 02 December 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

- a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.
- b. Ms. **Non-Responsive** of LAE Consulting conducted the survey.



BEST AVAILABLE COPY

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

December 2, 2001

**MEMORANDUM FOR: Company C (-) 1/119<sup>th</sup> Infantry (Mechanized), ATTN: SSG**  
**Non-Responsive** O Box 300, Smithfield, North Carolina, 27577-0300

**SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina**

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- j. Title 40 CFR, The Environmental Protection Agency.

BEST AVAILABLE COPY

**SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina**

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Smithfield NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Smithfield National Guard Armory in Smithfield, North Carolina on 19 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. Facility Description. This facility houses the Company C (-) 1/119<sup>th</sup> Infantry (Mechanized). The Armory has three full time personnel. Two recruiters utilize the an area for administrative purposes. All personnel perform administrative duties Monday through Friday between 0800 and 2000 hours. AGR soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The two soldiers hold the MOS 11M (Infantryman) and 92Y Supply. The Armory is utilized for drills on the weekend. The building was constructed in the 1950s. The facility houses ten administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

##### 5. Findings.

a. Material Safety Data Sheets (MSDS) were available on chemicals that are in use by this Armory. A chemical inventory has not been developed. The Readiness NCO has attended Hazard Communication Program Training.

b. A deactivated Indoor Firing Range was converted into a large storage area. Original acoustic material is present on the walls. Personnel complain that during heavy rains the range Pit fills with one or more feet of water and mosquitoes breed in the pit. The exposed metal at the bottom of the backstop shows evidence of rust. The range floor is concrete. Excess equipment, tents, tables, chairs, and TOE equipment are stored in the range. The range was decontaminated and cleared November 28, 1995. Fourteen bags of sand weighing 28,392 pounds were removed. Six wipe samples for Lead were taken (Table 1). Five of the six samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3,6).

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1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 2



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**SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina**

**Table 1**

| <b>Sample Number</b> | <b>Sample Location</b>          | <b>Results</b>               |
|----------------------|---------------------------------|------------------------------|
| 166                  | Backstop, left 2 ft up          | 23,528.84 mg/ft <sup>2</sup> |
| 167                  | Backstop, middle 5 ft up        | 22,747.80 mg/ft <sup>2</sup> |
| 168                  | Backstop, right side 7 ft up    | 11,666.79 mg/ft <sup>2</sup> |
| 169                  | Pit floor, near backstop        | 7554.12 mg/ft <sup>2</sup>   |
| 170                  | Pit floor, front                | 831.69 mg/ft <sup>2</sup>    |
| 171                  | Floor, at entrance to the range | 95.19 mg/ft <sup>2</sup>     |

c. The Supply room houses an Arms room, Communication equipment storage, Supply administrative area and a TA50/ CIF area and. The areas were visually surveyed and personnel interviewed. Chemical alarms with a radioactive source are stored within the Supply rooms secured areas. Signage stating "Warning Radioactive Hazard" was posted on the entrances to the supply room. Personnel stated that accountability and issuing of weapons is only performed in the Arms room. There is no ventilation system located within the Arms room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area. A secure area stores Communication equipment. Equipment is repaired at Ft Bragg, MATES and OMS #16.

d. The Drill Hall is used primarily for drills. The Hall is rented to the general population. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area.

e. POLs (petroleum, oil and lubricants), chemicals, and waste oils are stored in two separate buildings/containers in the motorpool. A wooden building the unit calls the Satellite Accumulation Point stores used oil (20 five gallon cans), 1 quart- 1 gallon cans of hydraulic fluid in cardboard boxes, and brake fluid, Spray paint, and Lithium batteries. Water cans are used to store waste oil. An additional chemical storage building with a in floor catchment area stores Lube oils and greases, and empty water cans.

f. The shower in the Enlisted bathroom is leaking. Green mold is growing near the shower floor.

g. The lighting was poor in the reference library. 25-Watt light bulbs were being used. Illumination levels were surveyed. Readings were taken and ranged from 1.8 Footcandles (FC) to 3.5 FC.

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**SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina**

h. Presumed Asbestos containing insulating Material (PACM) was taken from the insulation of the boiler in the boiler room. The boiler has been converted from fuel oil to natural gas.

**6. Recommendations.**

a. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling.

c. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Include items that contain a radioactive source on the hazardous chemical inventory. The item name, the radioactive material in the item, and the storage location should be listed on the inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office in North Carolina, Hazardous Waste office.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

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**SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina**

e. The Resource Conservation and Recovery Act, an environment regulation under the Environment Protection Agency states that a generator may accumulate up to 55 gallons of HW onsite for 90 days or less without obtaining a permit. The waste must be placed a container that is clearly labeled with the words "Hazardous Waste" and the name of the waste place in the container. The start date of the accumulation must also be written on the label. The waste container must be placed in a secondary containment that provides catchment in case of an accidental spill. The building storing the container must be approved for storage of HW. A generator who accumulates HW for more than 90 days is considered an operator of a HW storage facility and must obtain permits from the regional state EPA office. Each installation with the capacity for a release of a reportable quantity of oil or a Hazardous substance must prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan and an Installation Spill Contingency Plan (ISCP). The Spill Contingency Plan should be reviewed and updated every three years. The SPCC plan must include at a minimum spill prevention, readiness of response materials and equipment, personnel training, containment provisions, and a list of spills in past 12 months and the corrective action taken. The ISCP is a plan that describes how personnel will response to a release. The ISCP must include names, addresses and phone numbers of Armory Spill Response Coordinator(s), location of emergency equipment and response materials, an evacuation plan, a flow chart or description of arrangements with local fire and police departments, state or local emergency response teams, a description of personnel actions and responsibilities in response to fires, explosions, or any other unplanned release of hazardous materials at the Armory. Recommend that each individual in the organization is educated on the Spill Response Procedures and the location of response equipment and Spill Plan. Contact the North Carolina Occupational Safety and Health Office for technical assistance on reviewing and or developing Spill Contingency Plans. If funding is available considering purchasing an outside chemical storage building that is rated for fire and made for chemical storage. Inventory of the chemicals in the two buildings should be conducted. Dispose of all excess hazardous chemicals through the USPFONC and contact the North Carolina Occupational Safety and Health office for assistance in determining the category of the waste that is stored.

f. Recommend repairing the leak in the shower. Clean mold by washing walls and floors with a 50-100 part per million (PPM) bleach solution. **NOTE:** 1 Tablespoon of liquid bleach to 4 gallons of water gives you approximately a 50-PPM solution. Ensure that the room is well ventilated when using bleach. Perform custodial duties at least once a week to preclude the growth of addition mold.

g. Lighting in the Reference Library must be upgraded to meet the required 30-50 FC recommended [IES/ANSI RPI-1993]. Recommend upgrading the light bulb to 100 watts. Consider purchasing supplemental lighting such as desk or table lamps.

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SUBJECT: Industrial Hygiene Survey of Smithfield National Guard Armory, Smithfield, North Carolina

h. Results of Asbestos analysis showed a Trace amount of Asbestos. Trace equals less than 1% Asbestos.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

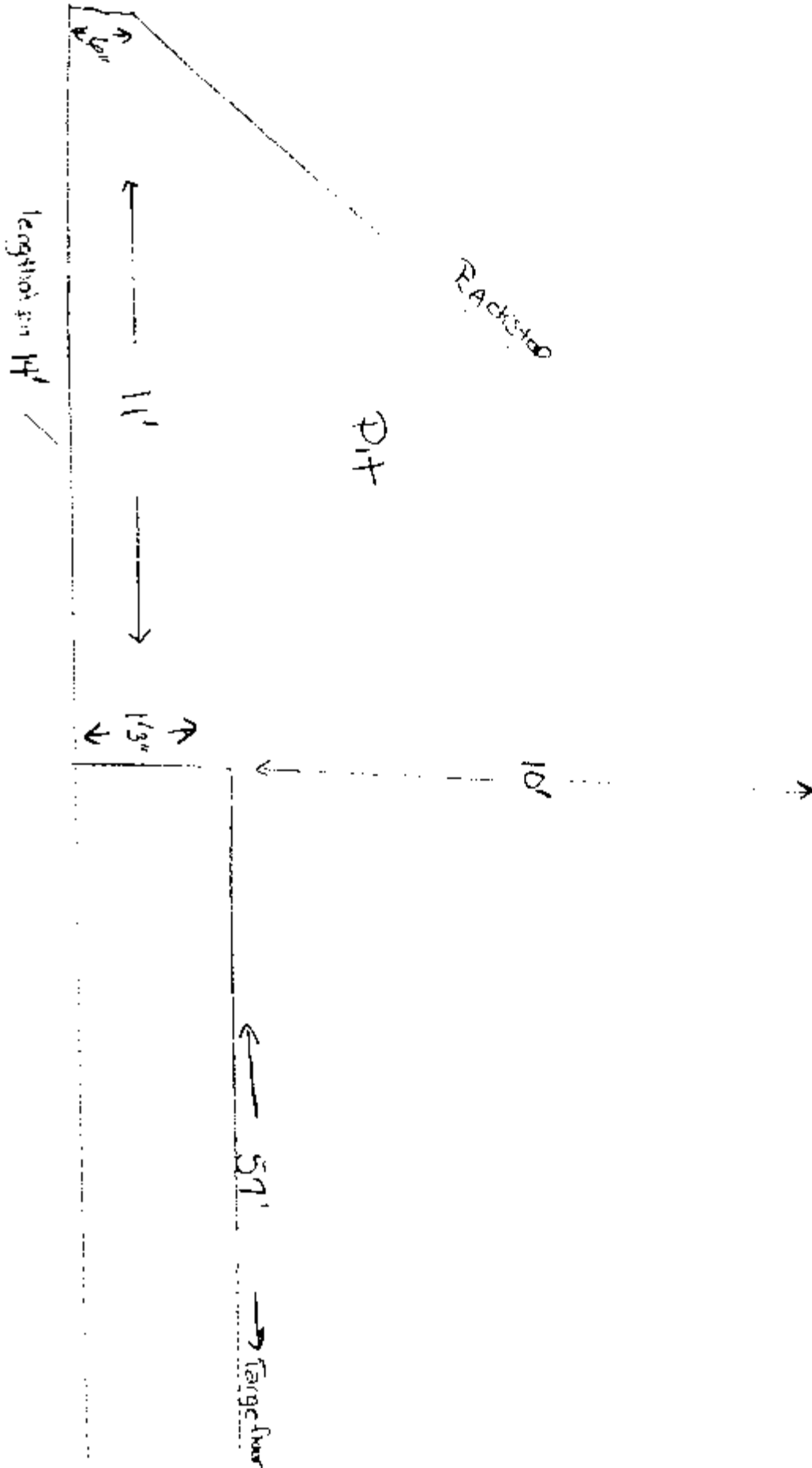
**Non-Responsive**  
LAE Consulting

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144

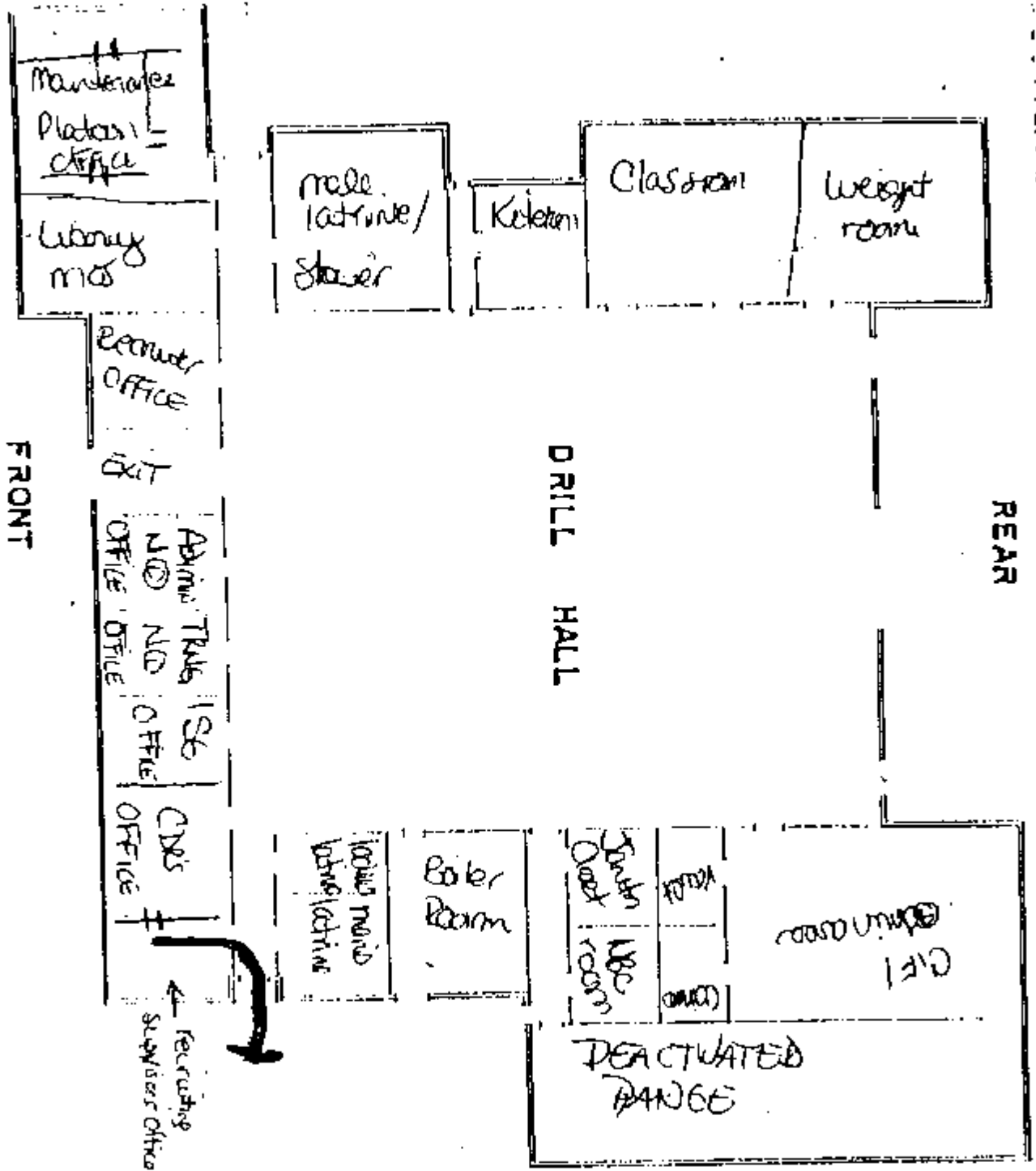
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Smithfield N.S. Army  
DEACTIVATED RAISES (Indoor)



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Smithfield N.G. Armory



FIRE EVACUATION PLAN  
IN CASE OF FIRE  
DIAL 934-2468



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CERTIFICATE OF ANALYSIS

Client: LAE Consulting Job Name: Smithfield National Guard Armory Chain Of Custody: 88407  
 Address: 1218 Scattered Pine Court Job Location: Not Provided Date Analyzed: 11/13/01  
 Severn, Maryland 21144 Job Number: Not Provided Person Submitting: [Redacted]  
 P.O. Number: Not Provided Report Date: 13-Nov-01

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 (ft <sup>2</sup> ) | Reporting Limit          | Final Result                | Comments |
|-------------------|----------------------|---------------|-------------|----------------|-------------------------------|--------------------------|-----------------------------|----------|
| 0210799           | 166                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 23528.84 ug/ft <sup>2</sup> |          |
| 0210800           | 167                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 22747.80 ug/ft <sup>2</sup> |          |
| 0210801           | 168                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 11666.79 ug/ft <sup>2</sup> |          |
| 0210802           | 169                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 7554.12 ug/ft <sup>2</sup>  |          |
| 0210803           | 170                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 831.69 ug/ft <sup>2</sup>   |          |
| 0210804           | 171                  | Flame         | Wipe        | ****           | 1.000                         | 20.00 ug/ft <sup>2</sup> | 95.19 ug/ft <sup>2</sup>    |          |

Analysis Method for Flame (Wipes, Paints, Airs and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

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Client: LAE Consulting  
Address: 1218 Scattered Pine Court  
Severn, Maryland 21144

Job Name: Smithfield National Guard Armory  
Job Location: Not Provided  
Job Number: Not Provided  
P.O. Number: Not Provided

Chain Of Custody: 88406  
Date Analyzed: 11/13/2001  
Person Submitting: [REDACTED]

Attention: [REDACTED]

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 Color | Analyst ID | Comments |
|-------------------|-----------------|----------------|--------------------|-----------------|---------------------|------------------------|----------------------|--------------------|-----------------|-------------------|---------------|---------------------|--------------|------------|----------|
|                   |                 |                |                    |                 |                     |                        |                      |                    |                 |                   |               |                     |              |            |          |

0210798

006

TR

TR

15

TR

TR

TR

TR

TR

TR

TR

TR

TR

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"

Non-Responsive

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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                     |                        |                    |
|---------------------|------------------------|--------------------|
| ARLOC               | INSTALLATION           | BLDG/ROOM NO.      |
|                     | Southfield N.G. Armory | PO Box 300         |
| LOCATION/CODE       | OPERATION/CODE         |                    |
| AA                  | ADO                    |                    |
| SURVEY DATE         | EVALUATOR (Initials)   |                    |
| 19OCT01             | Non-Responsive         |                    |
| MACOM/CODE          | SUBMACOM/CODE          | SUPERVISOR         |
| NG                  |                        | SSG Non-Responsive |
| TELEPHONE/DSN NO.   | UNIT/ORGANIZATION      | RAC                |
| Non-Responsive      | CCody/1194 Int (mech)  | 4                  |
| FREQUENCY (hrs/day) |                        |                    |
| +8                  |                        |                    |
| NO. CIV(S)          | NO. MIL                | NO. CONTRACTOR(S)  |
|                     | 5                      |                    |
| NO. LOC(S)          |                        | NO. OTHER          |
|                     |                        |                    |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| 0                | 0                  | 0                 |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |
| 0                | 0                  | 0                 |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | ✓/  | CANAL CAPS                | /   | APRONS                    | ✓/  | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |



## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE  | HAZARD DESCRIPTION      | PAC | EPC |
|-----------|-------------------------|-----|-----|
| 628-96-6  | Antifreeze              |     |     |
| 8006-61-9 | <del>POL</del> Gasoline |     |     |
| COLUBEOIL | POL                     |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |
|           |                         |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME      | FIRST NAME     | MI | SEX | SSN            | CATEGORY  |
|----------------|----------------|----|-----|----------------|-----------|
| Non-Responsive | Non-Responsive | L  | M   | Non-Responsive | recruiter |
| MSG            |                | A  | M   |                | recruiter |
| SGT            |                | B  | M   |                | AGR, 11M  |
| SSG            |                | M  | M   |                | AGR, 11M  |
| SSG            |                | M  | M   |                | AGR, 92Y  |
|                |                |    |     |                |           |
|                |                |    |     |                |           |
|                |                |    |     |                |           |
|                |                |    |     |                |           |

## SECTION 6. COMMENTS

☐ No comments

☐ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

### Safety

## GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

### CONTENTS (Listed by paragraph numbers)

|  | Para |
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| Purpose                                | 1    |
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| 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 Protective Equipment          | 14   |
| Point of Contact                       | 15   |

### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not



C Co (-) 1/119th Infantry Mechanized  
Smithfield National Guard Armory, North Carolina



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Views of Satellite Accumulation Areas





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Views of Satellite Accumulation Areas



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Downrange View of Converted Indoor Firing

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Views of Boiler and Boiler Room





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View of green Mold along bottom of wall  
in the Shower at the Smithfield NG Armory

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**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

December 07, 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company C 1/252  
Armor, ATTN: SFC **Non-Responsive** P.O. BOX 500 West Morganton Road, Southern  
Pines, North Carolina 28352-5036.

SUBJECT: Industrial Hygiene Survey of the Southern Pines National Guard Armory,  
Southern Pines, North Carolina.

1. References.

- a. Report submitted 23 November 2001, Industrial Hygiene Survey, LAE Consulting.
  - b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
  - c. AR 40-5, Preventive Medicine, October 1990.
  - d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
  - e. AR 385-10, 23 May 1988, Army Safety Program.
  - f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
  - g. TB MED 530, The Army Industrial Hygiene Program.
  - h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
  - i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
  - j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.
2. General.
- a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.
  - b. Ms. **Non-Responsive** of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M. **Non-Responsive** Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO (MAJ. **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.



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**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

November 23, 2001

MEMORANDUM FOR: Company C 1/252 Armor, ATTN: SFC **Non-Responsive** PO Box 500 West Morganton Road, Southern Pines, North Carolina, 28352-5036

SUBJECT: Industrial Hygiene Survey of Southern Pines National Guard Armory, Southern Pines, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Southern Pines NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

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**SUBJECT: Industrial Hygiene Survey of Southern Pines National Guard Armory, Southern Pines, North Carolina**

3. **Background.** At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the Southern Pines National Guard Armory in Southern Pines, North Carolina on 16 October 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. **Facility Description.** This facility houses the C Co 1/252 Armor. The Armory has two full time personnel. The personnel perform administrative duties Monday through Friday between 0800 and 2000 hours. Soldiers may perform within their Military Occupational specialty (MOS) during Drill weekend. The two soldiers hold the MOS 19K (M1A1 Tanker). The Armory is utilized for drills on the weekend. The building was built in 1958. The facility houses seven administrative areas, one kitchen/mess hall, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room.

5. **Findings.**

a. Material Safety Data Sheets (MSDS) were not available on chemicals that are in use by this Armory. Personnel have not received Hazard Communication Program Training.

b. A deactivated Indoor Firing Range was converted into a large storage area. Original acoustic material is present on the walls. The range's mechanical exhaust has been rendered non-operational. The exhaust is a ceiling mounted electric centrifuge type fan. Rain guard and louvers are present. The backstop should evidence of previous ammunition use. The backstop has not been repainted and is showing signs of minimal peeling. The floor is concrete. Excess supplies and equipment for turn-in is stored in the range. The range was decontaminated and cleared July 24, 1996. Eleven bags of sand weighing 22,308 pounds were removed. Nine wipe samples for Lead were taken (Table 1). Seven of the nine samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3,6).

Table 1

| Sample Number | Sample Location                | Results                      |
|---------------|--------------------------------|------------------------------|
| 146           | Cinder block wall, Left        | 34.84 mg/ft <sup>2</sup>     |
| 147           | Cinder block wall, right       | 488.37 mg/ft <sup>2</sup>    |
| 148           | Backstop, middle 5 ft ^        | 3309.85 mg/ft <sup>2</sup>   |
| 149           | Backstop, right, 7 ft ^        | 4391.10 mg/ft <sup>2</sup>   |
| 150           | Pit floor, rear                | 19,150.25 mg/ft <sup>2</sup> |
| 151           | Pit floor, front near pit edge | 7857.13 mg/ft <sup>2</sup>   |
| 152           | Exhaust Louver                 | 4439.16 mg/ft <sup>2</sup>   |
| 153           | Entrance to range, floor       | 498.58 mg/ft <sup>2</sup>    |
| 154           | Acoustic wall, left            | 23.43 mg/ft <sup>2</sup>     |

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**SUBJECT: Industrial Hygiene Survey of Southern Pines National Guard Armory, Southern Pines, North Carolina**

c. The Arms room located within the Supply Room was visually surveyed. Meters, Night vision, and Alarms having a radioactive source are stored in this room. Signage stating "Warning Radioactive Hazard" was not posted. Personnel stated that accountability and issuing of weapons are performed in this area. There is no ventilation system located within this room. There was no evidence of weapons repair seen in this room. Supply personnel were educated about ensuring that they maintain good personal hygiene after handling weapons and about the risk of performing weapons repair in a non ventilated area.

d. The Drill Hall is used primarily for drills. The Hall is rented to the general population 4 times a month. Two HUMMVs were stored in the Hall for security reasons. Visual examination and interview with personnel indicated no apparent vehicle maintenance being performed in this area.

e. POLs and chemicals are stored in two separate buildings/containers in the motorpool. A cinder block building is utilized as one of the buildings. Makeup air for this building is provided through a hole made through the block. Paint and painting supplies, propane cylinders, weed eater, and a large spill kit containing absorbent socks are the main items stored in this building. A fire extinguisher was found stored inside. POLs are stored primarily inside the second building. The building is constructed to provide containment in the case of a large or small spill. Both buildings have No smoking signs posted.

f. A previous Armory was converted into a maintenance/motorpool. A ten-person maintenance section utilizes this facility during Drill weekends. The facility has been maintenance bays. An (AFIST) Armor Full Integrated Simulator Trainer is housed in one of the bays. Training is conducted inside the tank where two to four crewmen and one instructor train on tank operations. The instructor operates a computer system, which delivers a real world tactic environment to a Video Display Terminal inside of the tank. A heating, ventilation, and air conditioning (HVAC) system is in place. Local exhaust ventilation is unnecessary since the tank has been rendered inoperable.

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SUBJECT: Industrial Hygiene Survey of Southern Pines National Guard Armory, Southern Pines, North Carolina

g. A Unit Conduct of Fire Trainer (UCOFT) is located near the Armory. The UCOFT is a mobile trailer moving from unit to unit. The UCOFT trains two Armor personnel with one instructor in issuing Fire Commands from a tank. Turrets and control panels are located at two stations. The amount of time spent in the UCOFT depends on the level of training needed to become proficient. The UCOFT is generator capable unit. A HVAC system is integrated within the walls of the trailer. A contractor performs maintenance once a month.

h. Tents, Tools and other TOE equipment are stored in the "Butler Building".

#### 6. Recommendations.

a. An inventory of the chemicals stored in this facility should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

b. Recommended that North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.) consider performing addition lead wipe sampling.

c. Continue to ensure that weapons maintenance is not performed inside the Arms room. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Post "Radioactive" appropriate signage where a known radioactive source is stored; include the item name, the radioactive material in the item, and the storage location on the hazardous chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office in North Carolina, Hazardous Waste office.

d. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

e. If funding is available considering purchasing an outside chemical storage building that is rated for fire and made for chemical storage. Inventory of the chemicals in the two buildings should be conducted. Dispose of all hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

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**SUBJECT: Industrial Hygiene Survey of Southern Pines National Guard Armory, Southern Pines, North Carolina**

f. A baseline survey was conducted on the AFIST, since it is a new operation to this Armory. A completed Industrial Hygiene Survey form can be found in Enclosure 2. There were no significant findings of the maintenance area.

g. The UCOFT did not have any significant deficiencies, but was mentioned in this report since it is an occupational operation.

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

3 Encl

1. Building Diagram
2. HHIM
3. Facility Photos

**Non-Responsive**

LAE Consulting

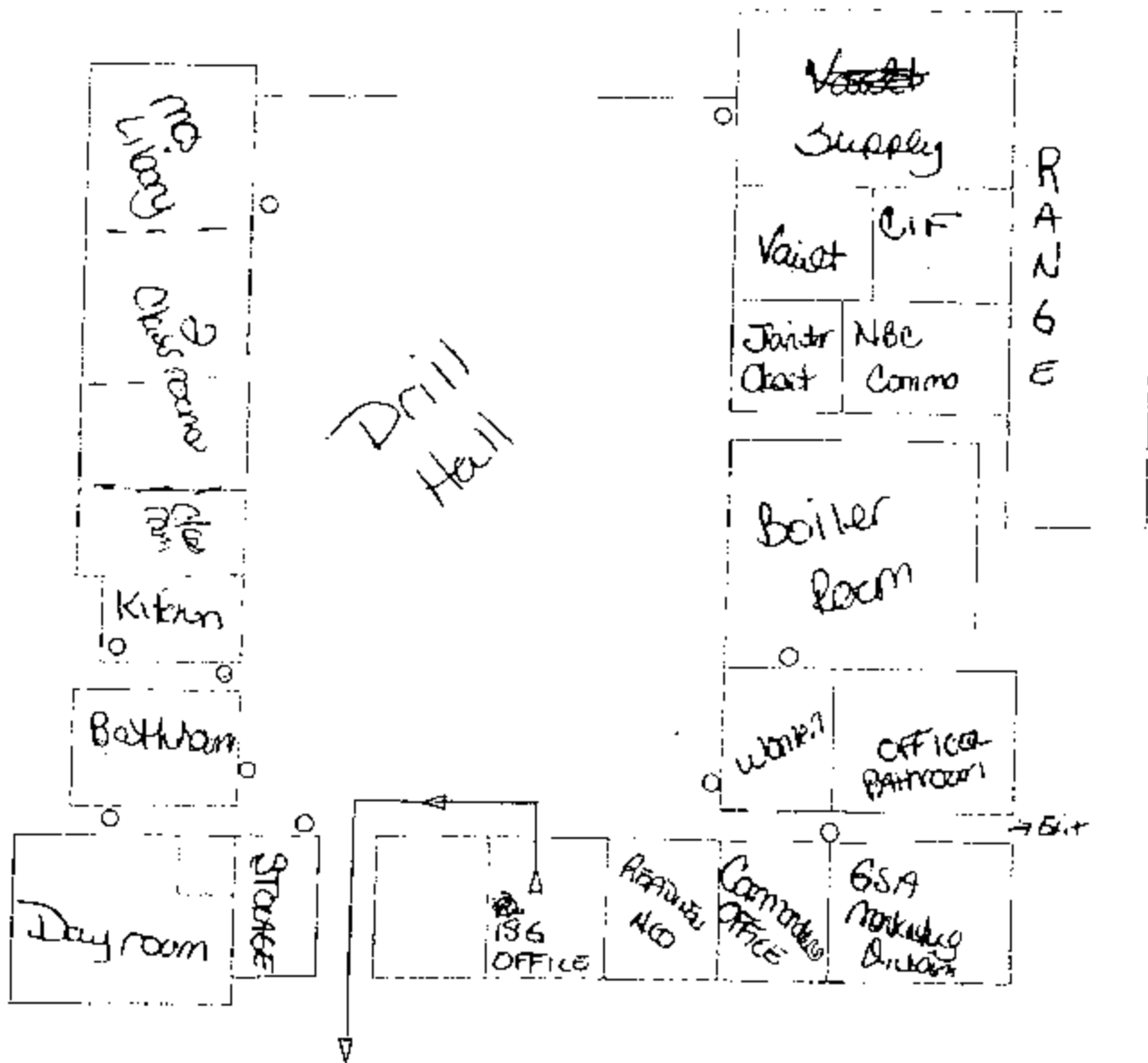
CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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# FIRE PLAN



○ FIRE EXTINGUISHERS  
△ EVACUATION ROUTE

FIRE DEPT:

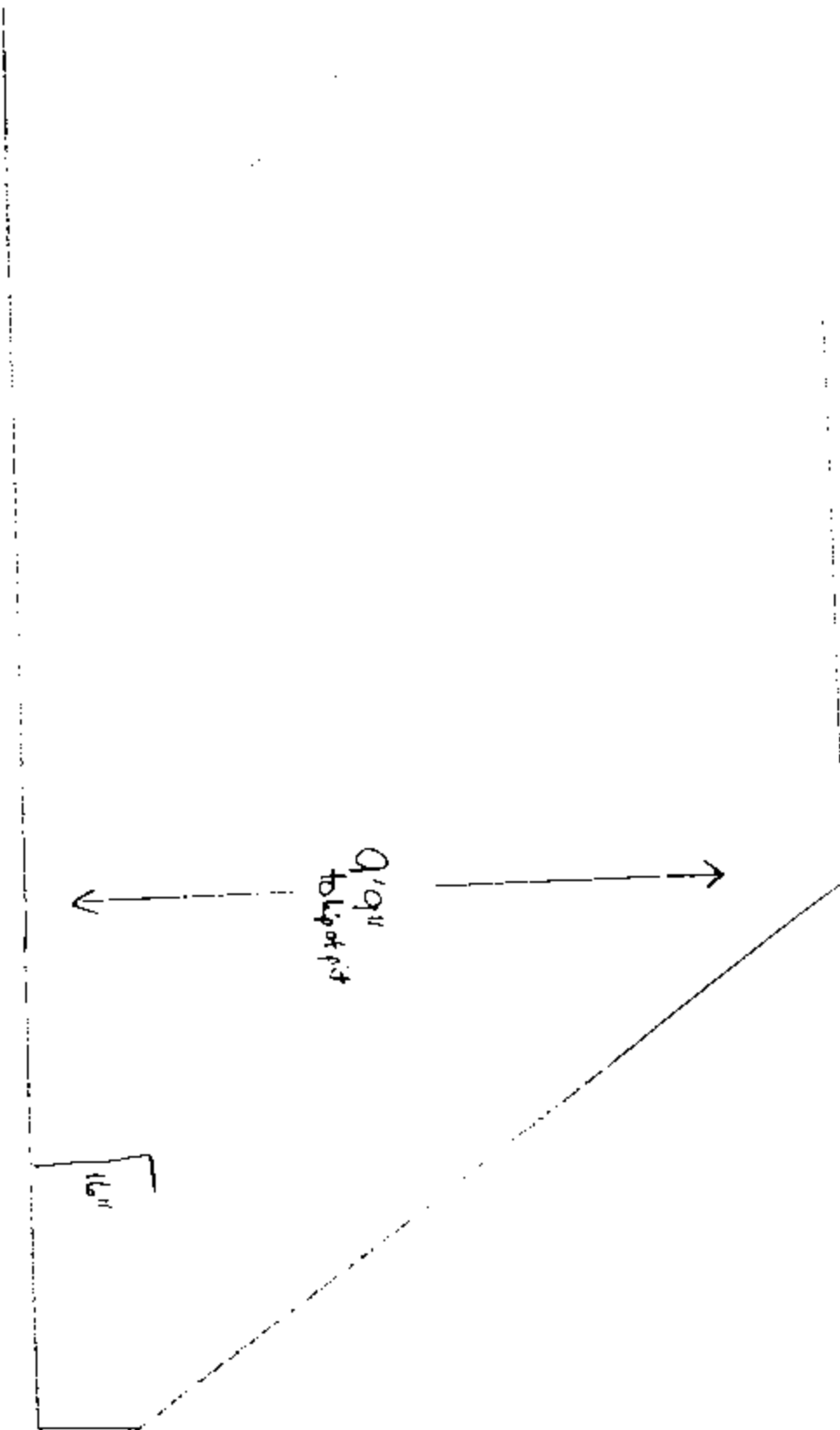
692-7031

Southern Pine Army



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# HECCTG



Length of pit 12'  
width of pit 18'

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**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting **Job Name:** Southern Pines National Guard Armory **Chain Of Custody:** 88402  
**Address:** 1218 Scattered Pine Court **Job Location:** Not Provided **Date Analyzed:** 11/12/2001  
 Severn, Maryland 21144 **Job Number:** Not Provided **Person Submitting:** [REDACTED]  
**P.O. Number:** Not Provided **Report Date:** 12-Nov-01

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 |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|-----------------|----------|
| 0210777           | 146                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 34.84 ug/ft²    |          |
| 0210778           | 147                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 488.37 ug/ft²   |          |
| 0210779           | 148                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 3309.85 ug/ft²  |          |
| 0210780           | 149                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 4391.10 ug/ft²  |          |
| 0210781           | 150                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 19150.25 ug/ft² |          |
| 0210782           | 151                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 7857.13 ug/ft²  |          |
| 0210783           | 152                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 4439.16 ug/ft²  |          |
| 0210784           | 153                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 498.58 ug/ft²   |          |
| 0210785           | 154                  | Flame         | Wipe        | ****           | 1.000            | 20.00 ug/ft²    | 23.43 ug/ft²    |          |

Analysis Method for Flame (Wipes, Paints, Airls and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:

Non-Responsive

Non-Responsive

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C Co 1/252 Armor  
Southern Pines National Guard Armory, North Carolina



Rear view of Armory



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Exterior and Interior views of  
Excess Paint storage building



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UCOFT ( Unit Conduct of Fire Trainer) Trailer



Inside view of POL storage building

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Motorpool/Maintanance Building  
housing AFIST unit and Tank



"Butler Building" used for storage of tents  
TOE equipment and tools



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Up and Down range view of Converted Indoor Firing Range



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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                   |                                  |                    |
|-------------------|----------------------------------|--------------------|
| ARLOC             | INSTALLATION                     | BLDG/RM NO.        |
|                   | C Co 11252 Armor Southern Plains | 500 West Morgan Rd |
| LOCATION/CODE     | OPERATION/CODE                   |                    |
| AA                | Admin                            |                    |
| SURVEY DATE       | EVALUATOR (Initials)             |                    |
| 16 OCT 01         | Non-Responsive                   |                    |
| MACOM/CODE        | SUBMACOM/CODE                    | SUPERVISOR         |
| NG                |                                  | SFC Non-Responsive |
| TELEPHONE/DSN NO. | UNIT/ORGANIZATION                | RAC                |
| Non-Responsive    | C Co 11252 Armor                 |                    |
| NO. CIV(S)        | NO. MIL                          | NO. CONTRACTOR(S)  |
|                   | 2                                |                    |
|                   |                                  | NO. LOC(S)         |
|                   |                                  | NO. OTHER          |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
|                  |                    |                   |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |
| 3-4              |                    |                   |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
| Utilized         |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

## SECTION 4. HAZARD INVENTORY DATA

| CAS CODE | HAZARD DESCRIPTION | PAC | EPC |
|----------|--------------------|-----|-----|
| COULBEOL | POLS               | 4   |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
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|          |                    |     |     |
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|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |
|          |                    |     |     |

## SECTION 5. PERSONNEL DATA

| LAST NAME      | FIRST NAME | MI | SEX | SSN            | CATEGORY |
|----------------|------------|----|-----|----------------|----------|
| Non-Responsive |            | E  | M   | Non-Responsive | AGR SFC  |
|                |            | L  | M   |                | AGR SSG  |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |
|                |            |    |     |                |          |

## SECTION 6. COMMENTS

☐ No comments☒ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

APPENDIX B  
INTERPRETATION OF SAMPLE RESULTS  
(PRIOR TO CLEANING)

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B-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.

B-2 BETWEEN 201 and 200,000 micrograms/sq ft  
Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

APPENDIX C  
INTERPRETATION OF SAMPLE RESULTS  
(AFTER CLEANING)

C-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. The paint color must contrast the color of the present substratum.

C-2 ABOVE 200 micrograms/sq ft  
As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**



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HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1984

NG PAM (AR) 385-16/  
ANGPAM 21-101

## Safety

# GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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| Goal                                   | 5    |
| Background                             | 6    |
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| Wipe Sampling Protocol                 | 8    |
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| Personal Protective Equipment          | 14   |
| Point of Contact                       | 15   |

## Appendices

- Sampling Strategy for Collection of Wipe Samples
- Interpretation of Sample Results (Prior to Cleaning)
- Interpretation of Sample Results (After Cleaning)
- OSHA Instruction CPL 2-2.20B
- Where to Purchase Sample Media and Containers
- AEHA Form 8-R (Bulk Sample Data)
- Instructions to Complete AEHA Form 8-R
- Examples of Computation of Lead Level from Wipe Sample Results
- Supporting Laboratories and Areas Served

## Glossary

- Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
- References**  
Related publications are listed below.
  - DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - AR 11-34** (The Army Respiratory Protection Program).
  - AR 40-5** (Preventive Medicine).
  - NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - USAEHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

15 August 2001

MEMORANDUM FOR The North Carolina Army National Guard, Company C (-) 105<sup>th</sup>  
Engineer (Combat), ATTN: SSG [REDACTED] 705 N. Old Stage Road, St. Paul's, North  
Carolina, 28384.

SUBJECT: Industrial Hygiene Survey of the St. Paul's National Guard Armory, St.  
Paul's, North Carolina.

1. References.

- a. Report submitted 5 August 2001, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. Ms. [REDACTED] of LAE Consulting conducted the survey.

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3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact M.

**Non-Responsive**, Regional Industrial Hygienist, ARNG-IHS, **Non-Responsive** OR  
COMMERCIAL **Non-Responsive**

**Non-Responsive**

Regional Industrial Hygienist



**LAE CONSULTING**  
1218 Scattered Pines Court, Severn, MD, 21144  
Tel: (410) 551-2717

August 10, 2001

**MEMORANDUM FOR:** Company C (-) 105<sup>th</sup> Engineer (Combat), ATTN: SSG [REDACTED]  
705 N. Old Stage Road, St Pauls, North Carolina, 28384

**SUBJECT:** Industrial Hygiene Survey of St Pauls National Guard Armory, St Pauls, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the St Pauls NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A Diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe sample at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, Guidelines for Converting Indoor Firing Ranges to Other Uses in Enclosure 6.





**SUBJECT: Industrial Hygiene Survey of St Pauls National Guard Armory,  
St Pauls, North Carolina**

3. **Background.** At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, an industrial hygiene survey was conducted at the St Pauls National Guard Armory in St Pauls, North Carolina on 27 June 2001 by Ms. **Non-Responsive** of LAE Consulting.

4. **Facility Description.** This facility houses the C Co(-) 105<sup>th</sup> Engineer (CBT). The Armory has one full time employee. The person performs all administrative duties and maintains the Supply and Arms room Monday through Friday between 0800 and 2000. The Armory is utilized for drills on the weekend. The building was built in the mid 1950's. The facility houses four administrative areas, one kitchen/mess hall, three classroom, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage building, Arms Room and a converted indoor firing range.

5. **Findings.**

a. A deactivated Indoor Firing Range (Enclosure 2) was converted into four cubicles storing Nuclear, Biological, and Chemical (NBC) equipment, Communication Equipment storage, and Platoon storage. The cubicles are made of wood and wire screening. The former pit of the range is also utilized as storage. The walls and backstop area have been painted since the deactivation of the range. The entrance is located off the Drill Hall. The range was decontaminated and cleared July 25, 1996. Three wipe samples for lead were taken (Table 1). One of the three samples was above the clearance level of 200 mg/ft sq indicted in reference g (enclosure 3 and 6).

TABLE 1

| Sample Location                                 | Results           |
|---|-------------------|
| Concrete Floor of Range Pit 4Ft from Backstop   | 4456. 01 mg/ft sq |
| Middle of backstop 6 Ft from floor              | 78.23 mg/ft sq    |
| Right Wall near Pit 6 Ft from floor (Downrange) | < 40 mg/ft sq     |

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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**SUBJECT: Industrial Hygiene Survey of St Pauls National Guard Armory,  
St Pauls, North Carolina**

**6. Recommendations.**

a. Recommend that North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/sg ft (reference g.), consider performing addition lead wipe sampling.

b. Recommend discontinuing weapons repair inside of the Arms room. The absence of ventilation poses a health risk in any occupational environment regardless of the operation being performed. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition.

c. Continue to discourage the use of the Drill Hall as a motor vehicle maintenance bay.

d. An inventory of the chemicals in the POL storage room should be conducted. Ensure all chemicals known to be hazardous has a MSDS and include the item onto the chemical inventory. Remove cardboard boxes. Consider purchasing non-flammable storage containers that are impervious. Conduct general housekeeping. Dispose of all excess items known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance.

e. Continue updating Hazardous Chemicals inventory with current MSDS. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the North Carolina Occupational Safety and Health office.

LAB Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 4



SUBJECT: Industrial Hygiene Survey of St Pauls National Guard Armory,  
St Pauls, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**

**Non-Responsive**

**LAE Consulting**

6 Encl.

1. Building Diagram
2. Deactivated Range Diagram
3. Laboratory Lead Wipe Results
4. Facility Photographs
5. HHIM
6. Excerpt NG Pam 385-16

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717





FRONT

REAR

ST Pauls N. G. Armory

X - FIRE EXTINGUISHER

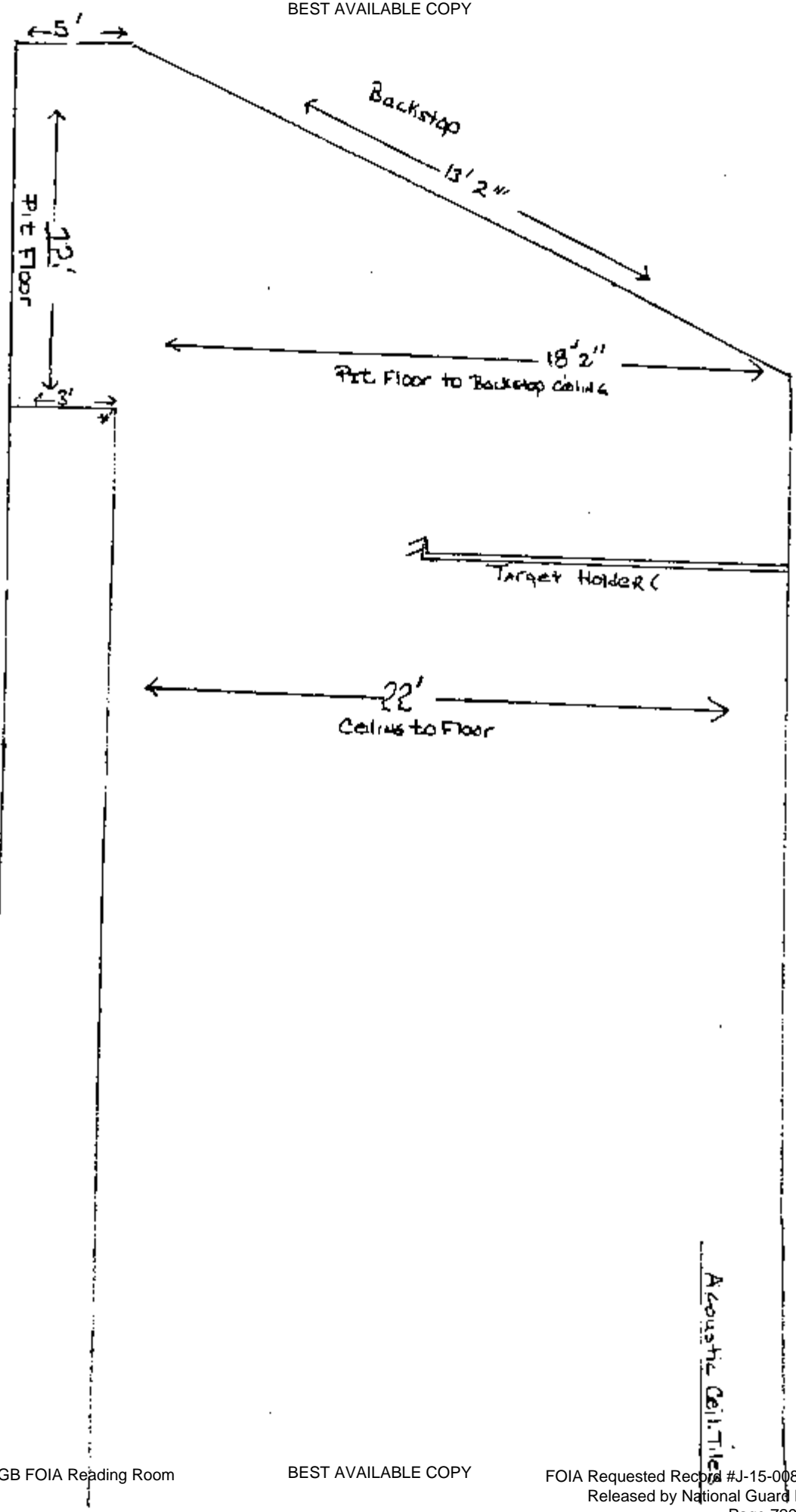
- |                                  |                        |
|----------------------------------|------------------------|
| 1. Administration Office         | 13. Storage            |
| 2. ISG Office                    | 14. Wool Room          |
| 3. Commander's Office            | 15. Supply Room        |
| 4. Training Room/Reading Library | 16. Classroom          |
| 5. Ladies Laterine               | 17. Classroom          |
| 6. Officer's Laterine            | 18. Classroom          |
| 7. Boiler Room                   | 19. Kitchen            |
| 8. Utility Room                  | 20. Enlisted Laterine  |
| 9. Commo Room                    | 21. NCO Room           |
| 10. Storage                      | 22. Recruiter's Office |
| 11. Maintenance Room             | 23. Entrance Foyer     |
| 12. NBC Room                     | 24. Drill Hall         |



Width of PRT - 20 FT  
 Width of Range (Wall to Wall) - 19' 8"

# ST Pauls National Guard Armory

## Deactivated Indoor Firing Range



Length of range from end of range 78'

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**CERTIFICATE OF ANALYSIS**

**Client:** LAE Consulting **Job Name:** N.6 Armstrong/COO(-) 105th Engineers, St. Pauls NC **Chain Of Custody:** 84710  
**Address:** 1218 Scattered Pine Court **Job Location:** Not Provided **Date Analyzed:** 07/12/2001  
Severn, Maryland 21144 **Job Number:** 01-06 **Person Submitting:** [Redacted]  
**P.O. Number:** Not Provided **Report Date:** 12-Jul-01

**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  |
|-------------------|----------------------|---------------|-------------|----------------|------------------|-----------------|----------------|---|
| 0158817           | 108                  | Flame         | Wipe        | ****           | 1.000            | 40.00 ug/ft²    | 4456.01 ug/ft² | The wipes submitted on this chain of custody had different specifications than those used to determine laboratory reporting limits. |
| 0158818           | 109                  | Flame         | Wipe        | ****           | 1.000            | 40.00 ug/ft²    | 78.23 ug/ft²   |   |
| 0158819           | 110                  | Flame         | Wipe        | ****           | 1.000            | 40.00 ug/ft²    | < 40.00 ug/ft² |   |

Analysis Method for Flame (Wipes, Paints, Airt and Soil/Solids): EPA 600/R-93/200(M)-7420

Analysis Method For Furnace: Air: EPA 600/R-93/200(M)-7421, Water: EPA 200.9

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

%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:**

Non-Responsive

Non-Responsive





## BULK SAMPLE DATA

For use of this form see USAENA 17B-149, the proponent is MCHB-DC-LLC

Return Address (complete address including zip code)

LAE CONSULTING  
1218 Scattered Pines CT  
Severn, MD 21144

Point of Contact (name, title, phone, fax)

Non-Responsive

Sampled Installation ST Pauls, NC Army  
Co (-) 105th Engineers  
ST PAULS, N.C.

Project Number

01-06

ARLOC

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|--|--|--|--|--|

Samples Collected By

Non-Responsive

Date Collected

27 June 2001

Date Shipped

3 July 2001

Description of Operation

Deactivated Indoor Firing range

Location (BLDG/AREA)

Deactivated Indoor Firing  
Range

Associated Complaints (be specific)

OSH office N 6. Flw on decontamination techniques  
of associated contractor.

Associated Air Samples

If yes, list sample numbers

☐

YES

☒

NO

## Label Information

Trade Name

NSN

Manufacturer

Address

MSDS Attached

☐

YES

☐

NO

Analysis Desired

| Lab Use Only | Sample No. | Constituents                                   | Results                  | Remarks            |
|--------------|------------|--|--------------------------|--------------------|
|              | 108        | Concrete floor in range pit<br>4 ft ← BACKSTOP | 4456.0 mg/H <sup>2</sup> |                    |
|              | 109        | Backstop (middle 6 ft ↑ from<br>floor)         | 78.23 mg/H <sup>2</sup>  | 4/24/2001/10/20/01 |
|              | 110        | Cinder block wall (right side)                 | < 40 mg/H <sup>2</sup>   |                    |
|              |            |  |                          |                    |
|              |            |  |                          |                    |
|              |            |  |                          |                    |
|              |            |  |                          |                    |
|              |            |  |                          |                    |

Comments to Lab:

Please call me with results @

Non-Responsive

Lab Use Only

Analyst (initials)

Reviewed By (initials)

Date Received

Date Reported

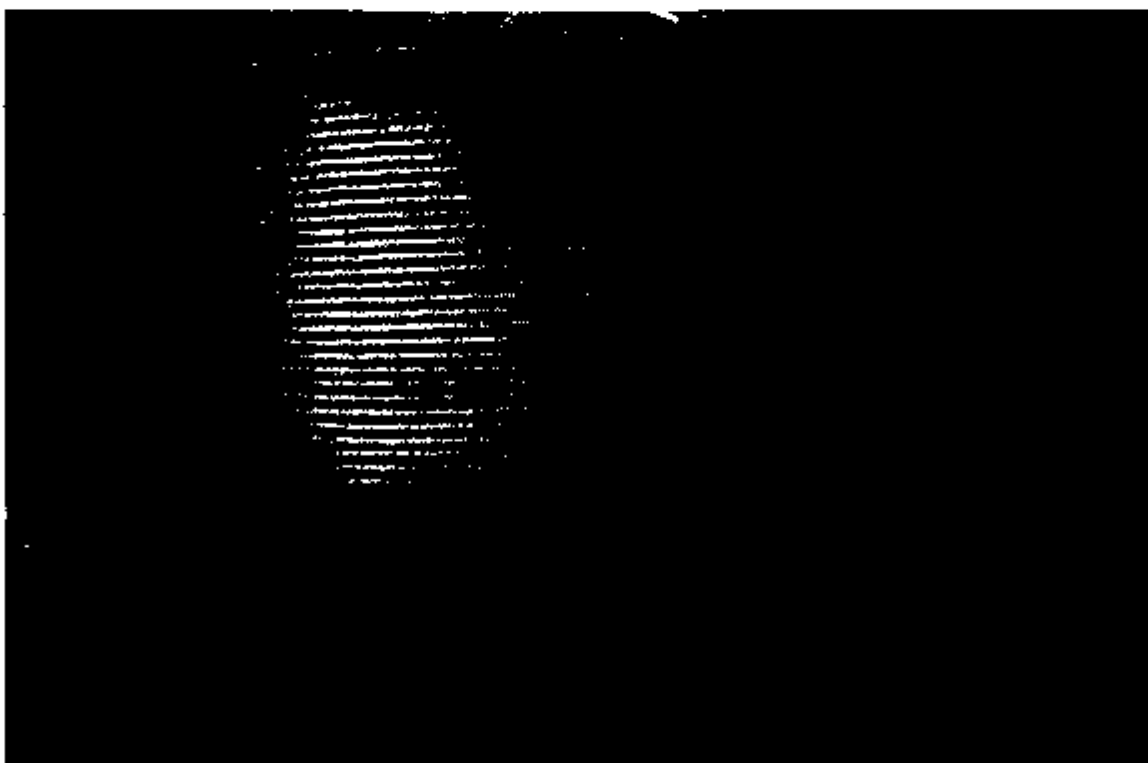
Procedures Performed

Comments:



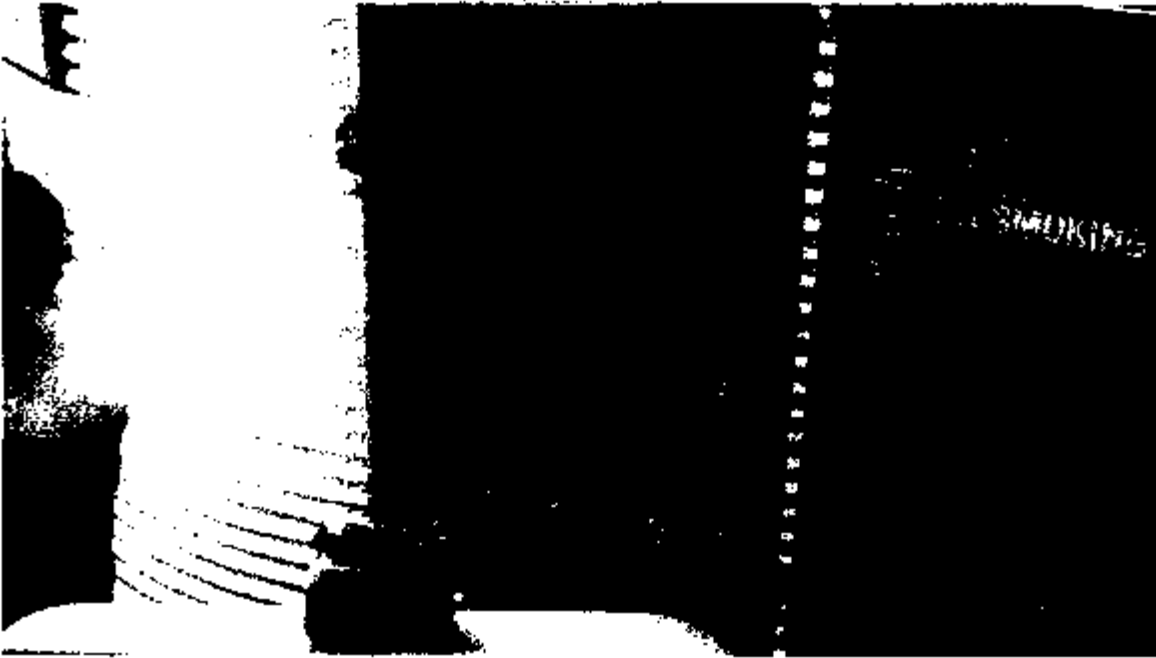


***St Pauls NC Armory  
Rear View Entrance to Drill Hall***

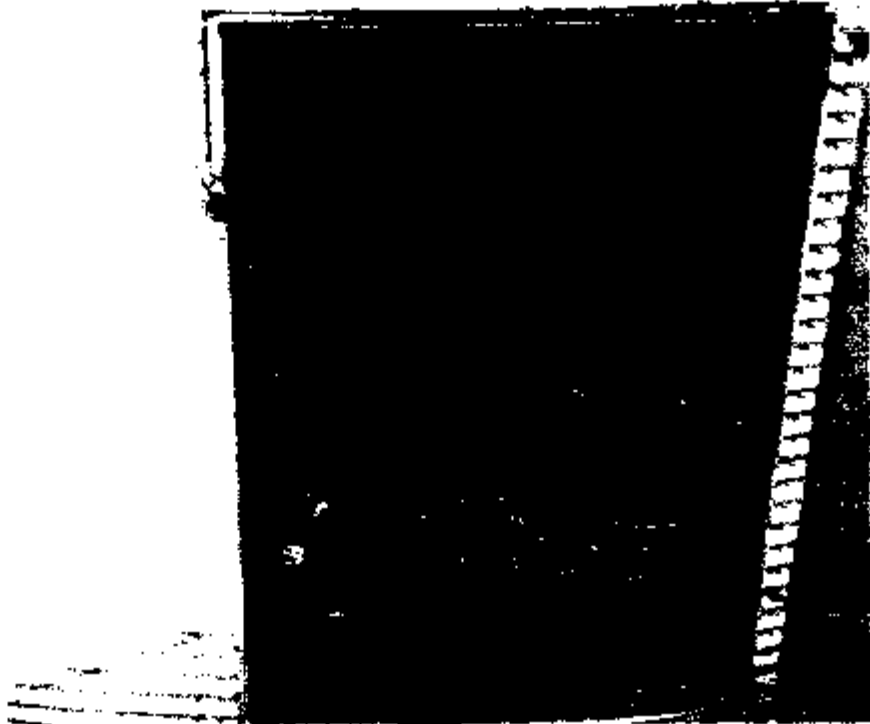


***Petroleum, Oil and Lubricant Storage Building***





*St Pauls NC Armory,  
Views of Interior  
and Contents of POL Storage Building*





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# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |  |                                    |
|-------------------------------------|--|------------------------------------|
| AR/LOC                              | INSTALLATION<br>ST Pauls National Guard Armory     | BLDG/RM NO.<br>705 N. Old Stage Rd |
| LOCATION/CODE                       | OPERATION/CODE                                     |                                    |
| SURVEY DATE<br>27 June 2001         | EVALUATOR (Initials)<br>LAE Consulting             |                                    |
| MACOM/CODE<br>N. G.                 | SUBMACOM/CODE                                      | SUPERVISOR<br>SSG Non-Responsive   |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>C Co (-) 105th Engineer (ABT) | RAC<br>4                           |
| FREQUENCY (hrs/day)<br>+8           |  |                                    |
| NO. CIV(S)                          | NO. MIL  | NO. CONTRACTOR(S)                  |
| NO. LOC(S)                          | NO. OTHER  |                                    |

## SECTION 2. FACILITY DATA

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| LAB HOODS<br>0        | VAPOR DEGREASERS<br>0   | SPRAY BOOTHS<br>0      |
| MAINTENANCE BAYS<br>0 | OPEN SURFACE TANKS<br>0 | VENTILATION UNITS<br>0 |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

[illegible][illegible]

## SECTION 6. COMMENTS

☐ No comments

☐ See attached sheet

## PRIVACY ACT STATEMENT

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                     |  |                                    |
|-------------------------------------|--|------------------------------------|
| ARLOC                               | INSTALLATION<br>ST Pauls National Guard Armory     | BLDG/RM NO.<br>705 N. Old Stage Rd |
| LOCATION/CODE<br>AA                 | OPERATION/CODE<br>Administrative Area              |                                    |
| SURVEY DATE<br>27 June 2001         | EVALUATOR (Initials)<br>LAE Consulting             |                                    |
| MACOM/CODE<br>N6.                   | SUBMACOM/CODE                                      | SUPERVISOR<br>SS6 Non-Responsive   |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION<br>C Co (-) 105th Engineer (CBT) | RAC<br>4                           |
| NO. CIV(S)                          | NO. MIL<br>1                                       | NO. CONTRACTOR(S)                  |
|                                     | NO. LOC(S)   | NO. OTHER                          |
|                                     |  | FREQUENCY (hrs/day)<br>+8 HRS      |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
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|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE       | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|-----------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FACE SHIELD     | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| MICAL/SAFETY    | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT   | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET  | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                 |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNESS       | /   |                             | /   |

AEHA Form 271-R (Test), 1 JAN 92

(HSHB-MI-1)

**SECTION 4. HAZARD INVENTORY DATA**

| CAS CODE | HAZARD DESCRIPTION | PAC | EPC |
|----------|--------------------|-----|-----|
|          |                    |     |     |
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**SECTION 5. PERSONNEL DATA**

| LAST NAME | FIRST NAME | MI | SEX | SSN | CATEGORY |
|-----------|------------|----|-----|-----|----------|
|           |            |    |     |     |          |
|           |            |    |     |     |          |
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|           |            |    |     |     |          |
|           |            |    |     |     |          |

**SECTION 6. COMMENTS**☐ No comments☐ See attached sheet**PRIVACY ACT STATEMENT**

Title 5 US Code, Section 301; Executive Order 9397 authorizes the use of your Social Security Number as an identification number. The purpose of this information is to identify and monitor data relating each DA civilian and military employee exposed to a hazardous workplace or operation. The use of this information is to provide histories of exposures for any given worker.

Disclosure of your Social Security Number is not mandatory; however, nondisclosures may result in untimely provision of proper medical monitoring.

FYI

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

NG PAM (AR) 385-16/  
ANGPAM 91-101

### Safety

## GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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| Cleaning Stored Contaminated Equipment | 10   |
| Contaminated Sand and Lead Waste       | 11   |
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### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.208
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

### Glossary

#### 1. Purpose

This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.

#### 2. References

Related publications are listed below.

a. *DODI 6055.1* (Department of Defense Occupational Safety and Health (OSH) Program).

b. *AR 11-34* (The Army Respiratory Protection Program).

c. *AR 40-5* (Preventive Medicine).

d. *NGR (AR) 385-15* (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).

e. *TB MED 502* (Occupational and Environmental Health Respiratory Protection Program).

f. *USAEHA TG 141* (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).

g. *Title 29, Code of Federal Regulations (CFR) revision, Part 1910* (Occupational Safety and Health Standards).



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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 microgram/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard, Detachment 1,  
Company 1/119<sup>th</sup> Infantry (Mechanized), Attn: **Non-Responsive**, 400 East Walnut Street,  
Tarboro, North Carolina, 27886-2509.

SUBJECT: Industrial Hygiene Survey of the Tarboro National Guard Armory, Tarboro,  
North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** of LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact [REDACTED] Non-Responsive Regional Industrial Hygienist, ARNG-IHS, Non-Responsive OR COMMERCIAL Non-Responsive

Non-Responsive

Regional Industrial Hygienist

CF: State Safety Office, NC, ATTN: AGSO Non-Responsive, Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**LAE Consulting**

1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

6 June 2002

MEMORANDUM FOR: Detachment 1, B Company 1/119<sup>th</sup> Infantry (Mechanized),  
ATTN: **Non-Responsive**, 400 East walnut street, Tarboro, North Carolina, 27886-2509

SUBJECT: Industrial Hygiene Survey of Tarboro National Guard Armory, Tarboro,  
North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Tarboro NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

SUBJECT: Industrial Hygiene Survey of Tarboro National Guard Armory, Tarboro North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, **Non-Responsive** consulting conducted an industrial hygiene survey at the Tarboro National Guard Armory in Tarboro, North Carolina on 23 May 2002.

4. Facility Description. This facility currently houses the Detachment 1, B Company 1/119<sup>th</sup> Infantry (Mechanized). The Armory will house an MP unit September 2002. The Armory has two full time soldier. The soldiers perform administrative duties Monday through Friday between 0800 and 2000 hours. The Armory is utilized for drills on the weekend. The building was constructed in the 1960s. The facility houses six administrative areas, one kitchen, one classrooms, a Drill hall, Supply Room, and an Arms Room.

5. Findings.

a. A deactivated Indoor Firing Range was converted into four areas. The areas are a Communication /Nuclear, Biological, Chemical Storage, Administrative Supplies room, a storage room, and an MOS library. A plywood wall separates the Communications area from the Administrative Supply. The MOS library was constructed utilizing partitions. A partition sits in front of the range pit. All ceiling tiles were removed. Vinyl flooring material covers the floor. Acoustic wall tiles are present. Thirteen bags of sand weighing 26,364 pounds were removed on January 9, 1996. Six wipe samples for Lead were taken (Table 1). Two of the six samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3).

Table 1

| Sample Number | Sample Location                    | Results                 |
|---------------|------------------------------------|-------------------------|
| 203           | Left side backstop 10 ft           | <20 ug/ft <sup>2</sup>  |
| 204           | Right side backstop 5 ft           | 60 ug/ft <sup>2</sup>   |
| 205           | Middle of back stop 3 ft           | 70 ug/ft <sup>2</sup>   |
| 206           | Pit floor Right side near backstop | 2500 ug/ft <sup>2</sup> |
| 207           | Pit Floor middle of floor          | 620 ug/ft <sup>2</sup>  |
| 208           | Acoustic tile in supply room       | <20 ug/ft <sup>2</sup>  |

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 2

**SUBJECT: Industrial Hygiene Survey of Tarboro National Guard Armory, Tarboro North Carolina**

b. The Drill Hall is used primarily for drills. The floor is an epoxy material. The material was applied after the hurricane of 1999. The hall is rented to the general population. Vehicle maintenance is not performed in this area.

c. A visual survey was performed in the Arms room. The Arms room is located within the Supply room. There was no evidence of weapons repair seen in this room. There is no ventilation system located within the Arms room. A dehumidifier was on (to prevent weapons rusting). Radiac meters are stored in this area. Signage stating "Warning Radioactive Hazard" was posted on the entrances to the area.

d. A corrugated metal building serves as the unit's Hazard material storage area. Wood shelves hold the unit's supply of lube oil, antifreeze, hydraulic fluid, GMD (grease, molybdenum disulfide) and brake fluid. A fire extinguisher is within reach. No Smoking signs are posted.

e. The hood over the stove was not operating. The unit is located in the kitchen. The kitchen is rented once every 4-6 weeks to the community.

f. Material Safety Data Sheets (MSDS) were readily available on chemicals that are and are not in use by this Armory. The Readiness NCO has not received Hazard Communication Training.

g. The former OMS building is located at the rear of the Armory. The building was constructed in 1947 and served as the main Armory until it was later converted into a Maintenance building. The State is considering renovating the building for a future maintenance facility.

#### **6. Recommendations.**

a. Recommend that the North Carolina Occupational Safety and Health office review the Lead wipe clearance sample results of this facility to determine if the range was properly decontaminated. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling.

b. Continue to discourage the use of the Drill Hall as a vehicle maintenance area.

JAR: C. G. G. G. G. G.  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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**SUBJECT: Industrial Hygiene Survey of Tarboro National Guard Armory, Tarboro North Carolina**

c. The absence of ventilation poses a health risk in this environment. Practice good personal hygiene by washing hands thoroughly after handling weapons and ammunition. Include radioactive items on the chemical inventory. A MSDS may be obtained and/or generated from the North Carolina Occupational Safety and Health office. Further assistance may be obtained from the United States Property Facility office (USPFONC) in North Carolina, Hazardous Waste office.

d. Ensure an inventory of all chemicals is conducted in the POL building. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina Occupational Safety and Health office for technical assistance. If funding is available considering purchasing an outside chemical storage building that is rated for fire safety and made for chemical storage.

e. Submit a work order to repair the hood in the kitchen.

f. An inventory of the chemicals used by this facility should be conducted. Ensure all chemicals known to be hazardous have a MSDS and include the item onto the chemical inventory. Dispose of all excess known to be hazardous chemicals through the USPFONC or contact the North Carolina, Occupational safety and Health Office (NC, OSHO) for technical assistance. Ensure that the storage location of the chemical is included on the inventory. The need for Hazard Communication Training should be addressed with the NC, OSHO.

g. Recommend contacting the NC, Occupational Health and Safety office for technical guidance during the planning phase of this project.

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Telephone: (410) 551-2717

Page 4

SUBJECT: Industrial Hygiene Survey of Tarboro National Guard Armory, Tarboro North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office, **Non-Responsive**.

**Non-Responsive**

4 Encl

1. Building Diagram
2. HHIM
3. Facility Photos
4. Lead Wipe Results

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 5

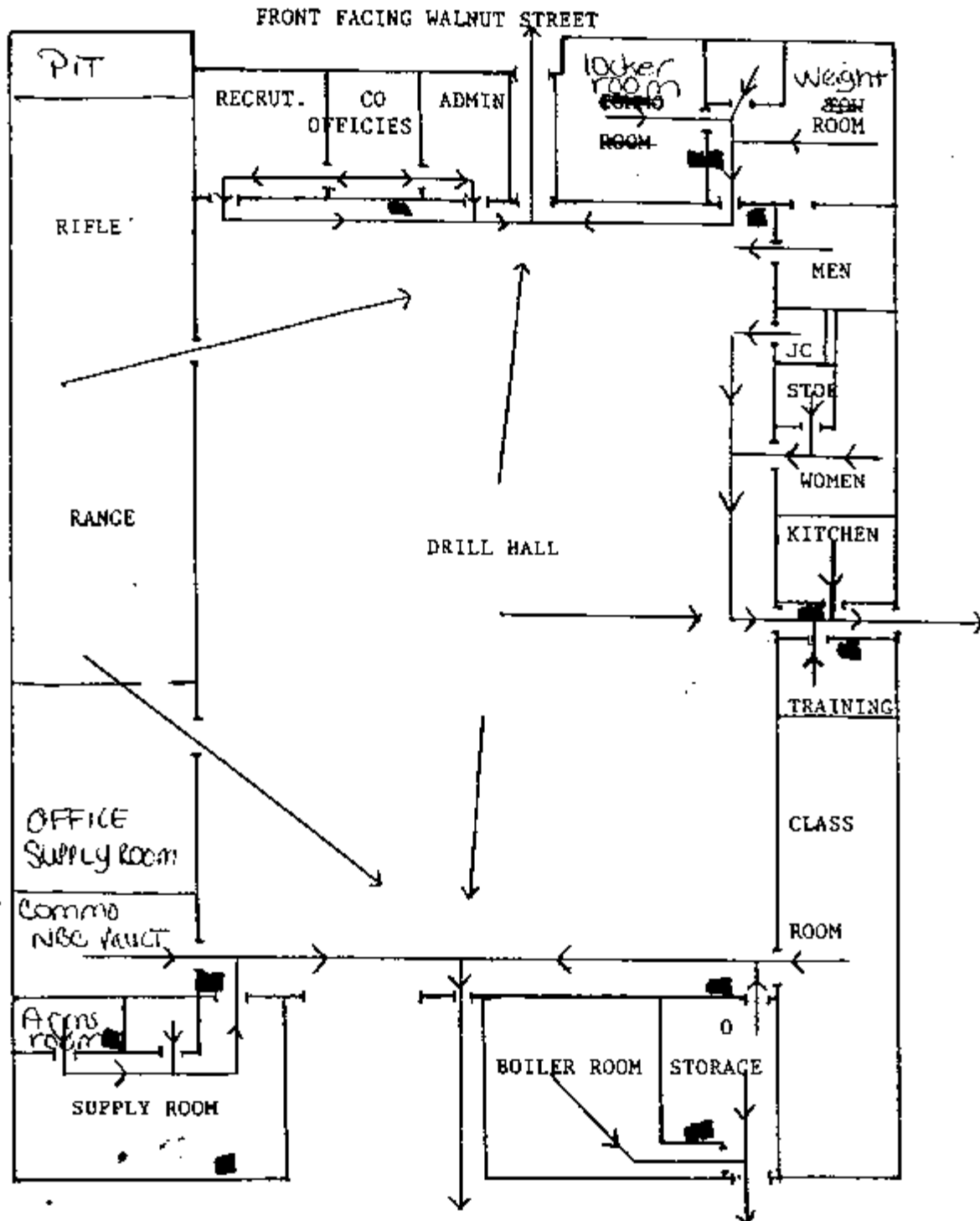
# TARBORO ARMORY

## FIRE EVACUATION PLAN

IN CASE OF FIRE CALL 911

■ DENOTES LOCATION OF FIRE EXTINGUISHER

○ INDICATES WHERE YOU ARE



## CERTIFICATE OF ANALYSIS

INVLAP  
NY ELAP  
AIHA

Client: IAE Consulting  
Address: 1218 Reistered Pine Court  
Severn, Maryland 21144  
Job Name: Tarboro National Guard Armory, N.C.  
Job Location: Not Provided  
Job Number: Not Provided  
P.O. Number: Not Provided  
Chain of Custody: 88418  
Date Analyzed: 6/3/02  
Person Submitting: [Redacted]  
Report Date: 03 Jun 02

Attention: [Redacted]

### Summary of Atomic Absorption Analysis for Lead

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| AMA Sample Number | Client Sample Number | Analysis Type | Sample Type | Air Volume (L) | Area Wiped (m <sup>2</sup> ) | Reporting Limit | Final Result | Comments |
|-------------------|----------------------|---------------|-------------|----------------|------------------------------|-----------------|--------------|----------|
| 0251866           | 203                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | < 20 ug/lr   |          |
| 0251867           | 204                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | 60 ug/lr     |          |
| 0251868           | 205                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | 70 ug/lr     |          |
| 0251869           | 206                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | 2500 ug/lr   |          |
| 0251870           | 207                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | 620 ug/lr    |          |
| 0251871           | 208                  | Flame         | Wipe        | ****           | 1.000                        | 20.00 ug/lr     | < 20 ug/lr   |          |

Analysis Method for Flame (Wipes, Paints, Airs and Solids): EPA 800R-93/200(M)-7421, Water: EPA 200.9  
Analysis Method for Furnace: Air: EPA 800R-93/200(M)-7421, Water: EPA 200.9

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

%Pb = percent lead by weight ug = micrograms ug/lr = 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

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of any other products. As a general protection to clients, the public and those laborers, 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 any advertising or publicity matter without prior written authorization from the Sample Types, locations and reflective procedures are based upon the information provided by the persons submitting them and subject 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 the listed light microscopy of bulk samples and transmission electron microscopy of AHERA lab samples.

AMA Analytical Services, Inc. 1000 N. 1st St., Suite 100, New York, NY 10001-1001  
4175 Forbes Blvd., Suite 100, Baltimore, MD 21204-1001 (301) 599-1001



Rear and Front Views of the Tarboro, NC Armory







Views Down and Up Range of the  
Converted Indoor Firing Range







Views of Administrative Storage  
located in Deactivated Firing Range





Views of Hazardous Material  
Storage Building







Exterior and Interior views of the old OMS building



**HEALTH HAZARD INFORMATION MODULE- INDUSTRIAL HYGIENE SURVEY**

(For use of this form, see HHIM User's Guide)

**SECTION 1. DEMOGRAPHIC DATA**

|                                     |   |                                     |
|-------------------------------------|---|-------------------------------------|
| ARLOC                               | INSTALLATION<br>Tayboro, National Guard Armory<br>Tayboro N.C. 27866-2509 | BLDG/RM NO.<br>400 E. Walnut Street |
| LOCATION/CODE<br>AA                 | OPERATION/CODE<br>ADD   |                                     |
| SURVEY DATE<br>23 May 02            | EVALUATOR (Initials)<br>LAE   |                                     |
| MACOM/CODE                          | SUBMACOM/CODE   | SUPERVISOR<br>Non-Responsive        |
| TELEPHONE/DSN NO.<br>Non-Responsive | UNIT/ORGANIZATION   | RAC (hrs/day)                       |
|                                     | NO. CONTRACTOR(S)   | NO. LOC(S)                          |
|                                     |   | NO. OTHER                           |

**SECTION 2. FACILITY DATA**

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

**SECTION 3. SURVEY DATA**

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
| GMV              |            | ACH/FPM   |                   |        |
| LEV              |            | CEM/FPM   |                   |        |
| Lighting         |            | FTC       |                   |        |

**PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)**

| GLOVES          | RU | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | RU |
|-----------------|----|-------------------------|--------------|--------------|----|
| ACID            | /  | AIRLINE                 |              |              | /  |
| COLD SURFACES   | /  | ABRASIVE BLASTING HOOD  |              |              | /  |
| HOT SURFACES    | /  | DISPOSABLE              |              |              | /  |
| NBC AGENTS      | /  | FULL FACE AIR PURIFYING |              |              | /  |
| OIL             | /  | 1/2 FACE AIR PURIFYING  |              |              | /  |
| SOLVENTS        | /  | POWERED AIR PURIFYING   |              |              | /  |
| SURGICAL GLOVES | /  | 1/4 FACE AIR PURIFYING  |              |              | /  |
| Cotton glove    | /  | SELF CONTAINED          |              |              | /  |

| EYES/FACE        | RU | HEARING                   | RU | BODY                      | RU | HEAD/FIT                    | RU |
|------------------|----|---------------------------|----|---------------------------|----|-----------------------------|----|
| CHEMICAL SPLASH  | /  | CANAL CAPS                | /  | APRONS                    | /  | COLD WEATHER BOOTS/HATS     | /  |
| FULL FACE SHIELD | /  | EARPLUGS                  | /  | COLD WEATHER CLOTHING     | /  | HARD HATS                   | /  |
| CHEMICAL/SAFETY  | /  | HELMETS                   | /  | COVERALLS                 | /  | IMPERMEABLE BOOTS           | /  |
| SAFETY/IMPACT    | /  | MUFFS                     | /  | FULL BODY SUIT            | /  | SAFETY/CONDUCTIVE SHOES     | /  |
| WELDING HELMET   | /  | MUFF/EARPLUG COMBO        | /  | HEAT REFLECTIVE VEST/SUIT | /  | SAFETY/NON-CONDUCTIVE SHOES | /  |
| Weld goggles     | /  | MUFF/EARPLUG W/TIME LIMIT | /  | SAFETY BELT/HARNES        | /  |                             | /  |

HEADQUARTERS  
DEPARTMENTS OF THE ARMY AND THE AIR FORCE  
Washington, DC 20310-2500  
31 January 1994

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NG PAM (AR) 385-16/  
ANGPAM 91-101

## Safety

### GUIDELINES FOR CONVERTING INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-S).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-S1, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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#### Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.20B
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

#### Glossary

1. **Purpose**  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. **References**  
Related publications are listed below.
  - a. **DODI 6055.1** (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. **AR 11-34** (The Army Respiratory Protection Program).
  - c. **AR 40-5** (Preventive Medicine).
  - d. **NGR (AR) 385-15** (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. **TB MED 502** (Occupational and Environmental Health Respiratory Protection Program).
  - f. **USA-EHA TG 141** (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. **Title 29, Code of Federal Regulations (CFR) revision, Part 1910** (Occupational Safety and Health Standards).



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## APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)

### B-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.

### B-2 BETWEEN 201 and 200,000 micrograms/sq ft

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 15. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

### B-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 should be considered suspect. Larger concentrations of lead dust may exist on surfaces tested other than results indicate. If the initial sampling results are above 200,000 micrograms/sq ft, the range should be cleaned by either HEPA vacuuming and/or wet wiping to establish a baseline. After the cleaning procedure is completed, resampling should occur until sample results are under the 200,000 micrograms/sq ft limit.

B-4 High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

\* PLEASE NOTE, that if your original wipe sample results were, i.e., 175,000 ug/sq ft then you would have to reduce the lead level below 13,125 ug/sq ft. This would meet the 75 percent reduction criteria; however, this is an enormous amount of lead dust and care should be taken to ensure a heavy coat of paint seals the lead dust. It is unknown at this time whether or not the remaining amount of lead dust will allow the latex paint to adhere to the substratum. If the paint peels, falls to the floor and is crushed over a period of time, it will create another respirable lead hazard. If this happens, contact your Regional Industrial Hygiene Office for guidance. Periodically monitor the converted range for signs of peeling paint. Paint chips can be analyzed for lead content. **DO NOT IGNORE PEELING PAINT IN A CONVERTED INDOOR FIRING RANGE.**

## APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)

### C-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. The paint color must contrast the color of the present substratum.

### C-2 ABOVE 200 micrograms/sq ft

As a minimum, a 75 percent reduction should occur from your initial sample results or the samples should be under the 200 micrograms/sq ft level. If all sample results meet this criteria, a contrasting color of lead-free latex paint must be applied before the area is utilized for other purposes. The room can only be used as a storage area. Storage of kitchen equipment and food is prohibited. The room cannot be used for a child care or nursery area. If sample results are not



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

April 23, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Dot. 2, HHC 1<sup>st</sup> BN (MECH) 120<sup>th</sup> Infantry, ATTN: **Non-Responsive** 838 Old Wilmington Road, Wallace, NC 28466.

SUBJECT: Industrial Hygiene Survey of the Fremont National Guard Armory, Wallace, North Carolina.

1. References.

- a. Report submitted 2 March 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. Discuss the lead levels in the deactivated Indoor Firing Range and the Drill Hall with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Have the Facility Management Office address the mold growth and the water/condensation causing the mold problem. Request repair of all areas causing leaks and removal of all water damaged materials.

e. Have the Facility Management Office address the cleanup and removal of the broken "Asbestos" floor tile in the building.

f. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

g. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact Non-Res

**Non-Responsive**

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO Non-Responsive Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

385 GINGER CAKE RD  
FAYETTEVILLE, GA 30214

**Non-Responsive**

March 2, 2003

**Non-Responsive**

NC Army National Guard Armory  
838 Old Wilmington Rd.  
Wallace, NC 28466

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**WALLACE ARMORY**

**WALLACE, NC**

**DATE:**

**JANUARY 16,2003**

**PREPARED BY**

**Non-Responsive**

**FAYETTEVILLE, GA 30214**

**Non-Responsive**

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Attachment 3 Laboratory Reports: Asbestos, Bulk Sample Analysis

Attachment 4 Photographs of Facility

Attachment 5 Schematic Drawing of Facility

Attachment 6 Copy of the Work Request Form

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Wallace Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Wallace Armory.

Personnel do not know when the building was finished. The facility houses the Detachment 2 HHC 1<sup>st</sup> BN (MECH) 120<sup>th</sup> Infantry. The armory is used by the troops of the Detachment 2 HHC 1<sup>st</sup> BN (MECH) 120<sup>th</sup> Infantry for their monthly weekend drills.

The Detachment 2 HHC 1<sup>st</sup> BN (MECH) 120<sup>th</sup> Infantry with 25 troops had 1 full time AGR personnel at the time of the survey. The AGR employee is assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Personnel are concerned about a roof leak in a corner of the Library Room. When it rains the room leaks really bad. It has caused the floor tiles to separate and break. The water has leaked to the floor of the room next to this one causing the same problem with the tiles (See pictures). Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter



### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Recruiting Office and at the Officer office (neither was been used at the time of the survey). There were two light fixtures out in the Classroom. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, four to five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool includes two HMMWV and one 2.5T truck. PMCS performed at the armory. Other repair jobs are performed at the OMS 17 in Wilmington.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation during weekend drills. It was clean. The Drill Hall is used to clean weapons about four times a year. Bay (roll-up) door is kept open when the weapons are cleaned. The Drill Hall is rented for parties, weddings receptions and reunions. Renters use catering services to bring their own food.

#### **Boiler Room**

Personnel reported that the facility has the original boiler. It uses propane gas. Maintenance is performed once a year. Maintenance check-up of the boiler has been done recently. Water heater is located next to the boiler. There is a small fracture of the pipe wrapping below the valves. A bulk sample for asbestos was taken. (See Laboratory results asbestos analysis report, attachment 3)

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. It has not been used as a firing range for along time. Personnel do not know

when the IFR was "sanitized". Original acoustic material is present on the walls. The floor is concrete. Six wipe samples were taken from the IFR. Three of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

| Sample Number | Sample Location              | Results |
|---------------|------------------------------|---------|
| 81            | Bullet backstop              | 5600ug  |
| 82            | Floor in front of backstop   | 725ug   |
| 83            | Item 1, stored in IFR        | 281ug   |
| 84            | Item 2 stored in IFR         | 78ug    |
| 85            | Wall floor next to exit door | 141ug   |
| 86            | Blank                        | BLR     |

### **Roof Water Leak**

Personnel are concerned about a roof leak in a corner of the Library Room. When it rains the room leaks really bad. It has caused the floor tiles to separate and break. The water has leaked to the floor of the room next to this one causing the same problem with the tiles (See pictures). Bulk samples for asbestos were taken from these rooms. A work request form was sent to the proper authorities on August 2001. The project was approved on December 2001 for the repair of the roof. A copy of the work request form is included. At the time of the survey the roof had not been repaired. The tiles in these rooms should be replaced.

### **Asbestos Sampling**

Bulk samples for asbestos were taken from a broken ceiling tile in the Library, broken pipe wrapping in the Boiler Room and broken floor tiles in the library. The result of the analysis of the floor tiles was positive for asbestos. See laboratory report in attachment 3.

### **Weapons Vaults**

The Wallace Armory has a weapon storage vault located in the Supply Room. The weapons list includes M-16s, M-2 50 Caliber and M-240. The dehumidifier is a

new one and is turned on at all times. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall, about four times a year.

### **A/C Heating System**

Individual window A/C units cool the administrative offices and the classroom. The supply room also has a window A/C unit.

### **Material Safety Data Sheets**

The MSDS Book is located at the Readiness NCO Office. Not known when was updated. There is an oil shed located behind the building. There is no Hazardous Materials Inventory List.

### **Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 2

**Table 2**

| <b>Location</b>                        | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|--|--|---|
| ADO Readiness NCO Office               | 44-69 (Avg. 51)                        | 50-100  |
| Training Room (Library)                | 46-89 (Avg. 67)                        | 50-100  |
| ADO Recruiting Office (Not in use now) | 25-31 (Avg. 29)                        | 50-100  |
| Officer Office (Not in use now)        | 18-44 (Avg. 32)                        | 50-100  |
| Platoon Sgt. Office                    | 40-154 (Avg. 73)                       | 50-100  |
| Classrooms                             | 29-70 (Avg. 50)                        | 50-100  |
| ADO Supply Room (Storage)              | 21-31 (Avg. 27)                        | 20  |
| Drill Hall                             | 53-102 (Avg. 68)                       | 30  |

Light measurements were below IES guidelines at the Recruiting Office and at the Officer office (neither was been used at the time of the survey). There were two light fixtures out in the Classroom. The other areas tested were within IES minimum standards. Consideration should be given to replace burned out light

fixtures and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4.REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out light fixtures are replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- A Hazardous Materials Inventory List should be made and placed in the oil shed. Ensure that personnel and troops have knowledge of the location of the MSDS book, and are enrolled in hazardous materials safety training.
- A new work request should be re-submitted to the appropriate state office to for the repair of the roof and also for the replacement of floor tiles if it has not been done yet.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

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SECTION 1.

DEMOGRAPHIC DATA

a. ARLOC \_\_\_\_\_ b. INSTALLATION Wallace NC Armory c. BLDG/RM NUMBER Readiness NCO Office  
 d. LOCATION/CODE Readiness NCO, Supply, Training, Computer work about 4 hr/day e. OPERATION/CODE \_\_\_\_\_ f. DESCRIPTION \_\_\_\_\_  
 g. MACOM/CODE NC h. SUPERVISOR \_\_\_\_\_  
 i. TELEPHONE/AUTOVON NUMBER \_\_\_\_\_ j. FREQUENCY (Hrs Per Day) \_\_\_\_\_  
 k. NO CIV(S) \_\_\_\_\_ l. NO MIL \_\_\_\_\_ m. NO CONTRACTOR(S) \_\_\_\_\_ n. NO LOC(S) \_\_\_\_\_ o. NO OTHER \_\_\_\_\_

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SECTION 2.

IH STAFFING DATA

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOTH-S \_\_\_\_\_  
 e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

SECTION 3.

SURVEY DATA

a. SURVEY DATE 1-16-03 b. EVALUATOR (INITIALS) \_\_\_\_\_

Non-Responsive

| c. CONTROLS PRESENT      | d. EVALUATION        | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS   |
|--------------------------|----------------------|--------------|----------------------|-------------|
| <u>Regulation Office</u> | <u>44-69, Aug 51</u> | <u>FC</u>    | <u>50-100</u>        | <u>ADST</u> |
| <u>Supply Storage</u>    | <u>21-31, Aug 27</u> | <u>FC</u>    | <u>20</u>            | <u>ADST</u> |
|                          |                      |              |                      |             |
|                          |                      |              |                      |             |

h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)

| 1. RESPIRATOR           | MANUFACTURER | NIOSH FC NO | R/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| 1/4 FACE AIR PURIFYING  |              |             |     |
| 3/4 FACE AIR PURIFYING  |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNESS    | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

SECTION 4.

HAZARD INVENTORY DATA

| a. CAS CODE  | b. HAZARD DESCRIPTION                                 | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO) |
|--------------|---|---------------|---|
| <u>POVOT</u> | <u>Daily use of computer for long periods of time</u> | <u>3</u>      |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |
|              |   |               |   |





Analytical Environmental Servs, Inc.

Date: 2/21/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: **Lead Wipe**  
 Project No: Angel Guardiola  
 PO No:

Lab Order: 0302423  
 Date Received: 2/14/2003 11:30:  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF   | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|------|----------------|---------------|
| 0302423-030A  | 53               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-031A  | 54               | 31.0    | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-032A  | 55               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-033A  | 56               | BRL     | µg, Total | 2.83 | 1    | 1/14/2003      | 2/19/2003     |
| 0302423-034A  | 61               | 528     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-035A  | 62               | 1140    | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-036A  | 63               | 44.0    | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-037A  | 64               | 380     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-038A  | 65               | 155     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-039A  | 66               | BRL     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-040A  | 71               | 2960    | µg, Total | 7.22 | 2.55 | 1/15/2003      | 2/19/2003     |
| 0302423-041A  | 72               | 6010    | µg, Total | 10.0 | 3.54 | 1/15/2003      | 2/19/2003     |
| 0302423-042A  | 73               | 376     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-043A  | 74               | 878     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-044A  | 75               | 105     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-045A  | 76               | BRL     | µg, Total | 2.83 | 1    | 1/15/2003      | 2/19/2003     |
| 0302423-046A  | 81               | 5600    | µg, Total | 9.76 | 3.45 | 1/16/2003      | 2/19/2003     |
| 0302423-047A  | 82               | 725     | µg, Total | 2.83 | 1    | 1/16/2003      | 2/19/2003     |
| 0302423-048A  | 83               | 281     | µg, Total | 2.83 | 1    | 1/16/2003      | 2/19/2003     |
| 0302423-049A  | 84               | 78.0    | µg, Total | 2.83 | 1    | 1/16/2003      | 2/19/2003     |
| 0302423-050A  | 85               | 141     | µg, Total | 2.83 | 1    | 1/16/2003      | 2/19/2003     |
| 0302423-051A  | 86               | BRL     | µg, Total | 2.83 | 1    | 1/16/2003      | 2/19/2003     |
| 0302423-052A  | 91               | BRL     | µg, Total | 2.83 | 1    | 1/27/2003      | 2/19/2003     |
| 0302423-053A  | 92               | BRL     | µg, Total | 2.83 | 1    | 1/27/2003      | 2/19/2003     |
| 0302423-054A  | 93               | BRL     | µg, Total | 2.83 | 1    | 1/27/2003      | 2/19/2003     |
| 0302423-055A  | 94               | BRL     | µg, Total | 2.83 | 1    | 1/27/2003      | 2/19/2003     |

Wet/Gov  
 Armon

Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
3785 Presidential Parkway  
Atlanta, GA 30340  
Tel: (770) 467-8177  
Fax: (770) 467-8188

AES Job Number: **B13040**  
Page 1 of 3 Total Samples  
Thursday, February 27, 2003

**NVLAP**  
Lab # 102082-0

### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
Project Name: **Atlanta, NC Library**  
Client Sample ID: 87  
Location: Broken ceiling tile - library

Project Number:  
AES Lab ID: 125007

Sample Description: Gray soft fibrous to silty with paint

**All percentages given below are visually estimated by volume**

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         |    | Vermiculite:          |    |
| Amosite:            |    | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           |    |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       | 65 | Bitumen:              |    |
| Fiberglass:         |    | Resilient Material:   |    |
| Cellulose:          |    | Glue:                 |    |
| Animal Hair:        |    | Binders:              | 35 |
| Antigorite:         |    |                       |    |

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program. Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are visually estimated by volume.  
Determination of Asbestos Bulk Sample Quality Assurance Program.  
in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested.  
The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

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**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
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 Fax: (770) 457-8188

AES Job Number: **B13040**  
 Page 2 of 3 Total Samples  
 Thursday, February 27, 2003

**BULK SAMPLE ANALYSIS**

Client Name: **Non-Responsive**  
 Project Name: **Wallace, NC Armory** Project Number:  
 Client Sample ID: 88 AES Lab ID: 125008  
 Location: Broken wrapping - boiler room

Sample Description: Layered: 1) Dark brown semi-hard woven with paint; 2) Dark brown soft fibrous;  
 3) Brown soft fibrous

All percentages given below are visually estimated by volume

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         |    | Vermiculite:          |    |
| Amosite:            |    | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           |    |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       |    | Bitumen:              |    |
| Fiberglass:         | 70 | Resilient Material:   |    |
| Cellulose:          |    | Glue:                 |    |
| Animal Hair:        | 20 | Binders:              | 10 |
| Antigorite:         |    |                       |    |

COMMENTS: Paint included as binder.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are visually estimated by volume.  
 Determination of Asbestos in Bulk Samples using PLM is performed in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.

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AES Job Number: **B13040**  
 Page 3 of 3 Total Samples  
 Thursday, February 27, 2003

**NVLAP**  
 Lab # 102082-0

### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
 Project Name: Wallace, NC Armory  
 Client Sample ID: 89  
 Location: Broken floor tile - library  
 Project Number:  
 AES Lab ID: 125009

Sample Description: Material A: Dark brown hard compact partly granular with fibers and bitumen;  
 Material B: Black hard compact partly granular with fibers and bitumen

All percentages given below are visually estimated by volume

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         | 10 | Vermiculite:          |    |
| Amosite:            |    | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           | 35 |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       |    | Bitumen:              | 1  |
| Fiberglass:         |    | Resilient Material:   |    |
| Cellulose:          | 1  | Glue:                 |    |
| Animal Hair:        |    | Binders:              | 53 |
| Antigorite:         |    |                       |    |

COMMENTS: Material A: Floor tile contains 10% chrysotile. Material A: Bitumen contains 3% chrysotile. Material B: Floor tile contains 10% chrysotile. Material B: Bitumen contains 3% chrysotile.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are visually estimated by volume.  
 Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993. This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.





**Wallace, NC Armory**







## Drill Hall



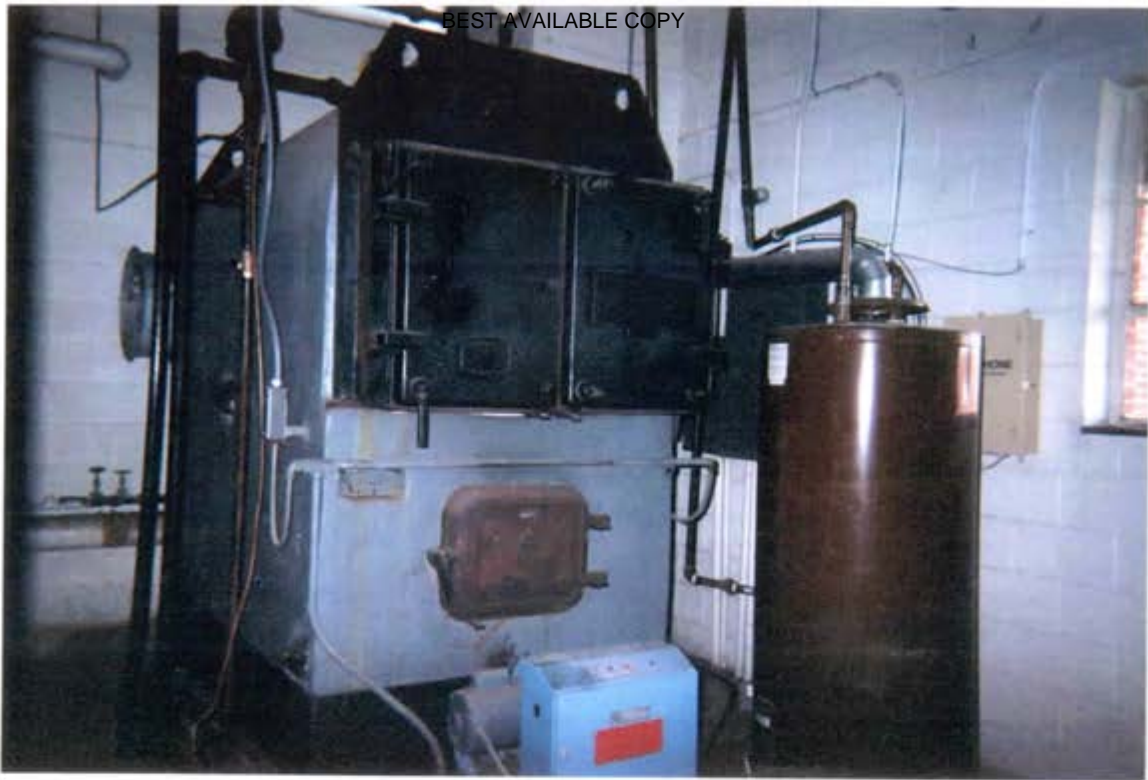


**A/C Window Unit  
Classroom**

**Heating Grill**







**Boiler Room**

**Broken Pipe  
Wrapping**



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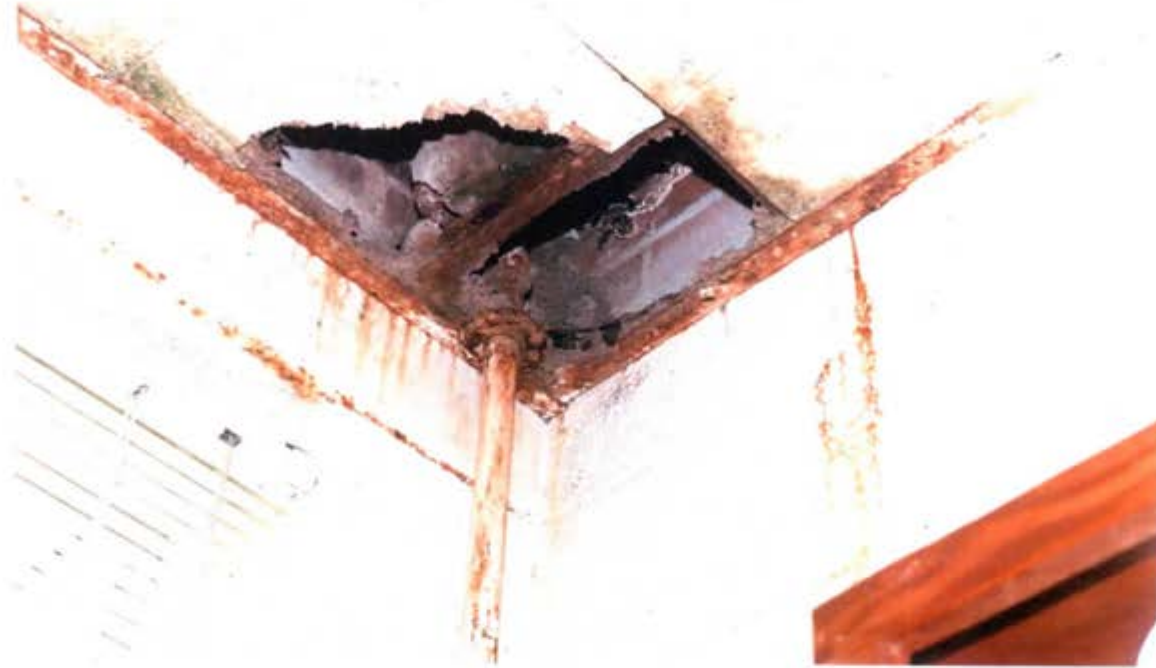


**Missing, Broken Floor  
Tiles, Library**

**Loose Floor Tiles,  
Officer Office**







**Water Leakage,  
Broken Ceiling Tile**

## **Motor Pool**



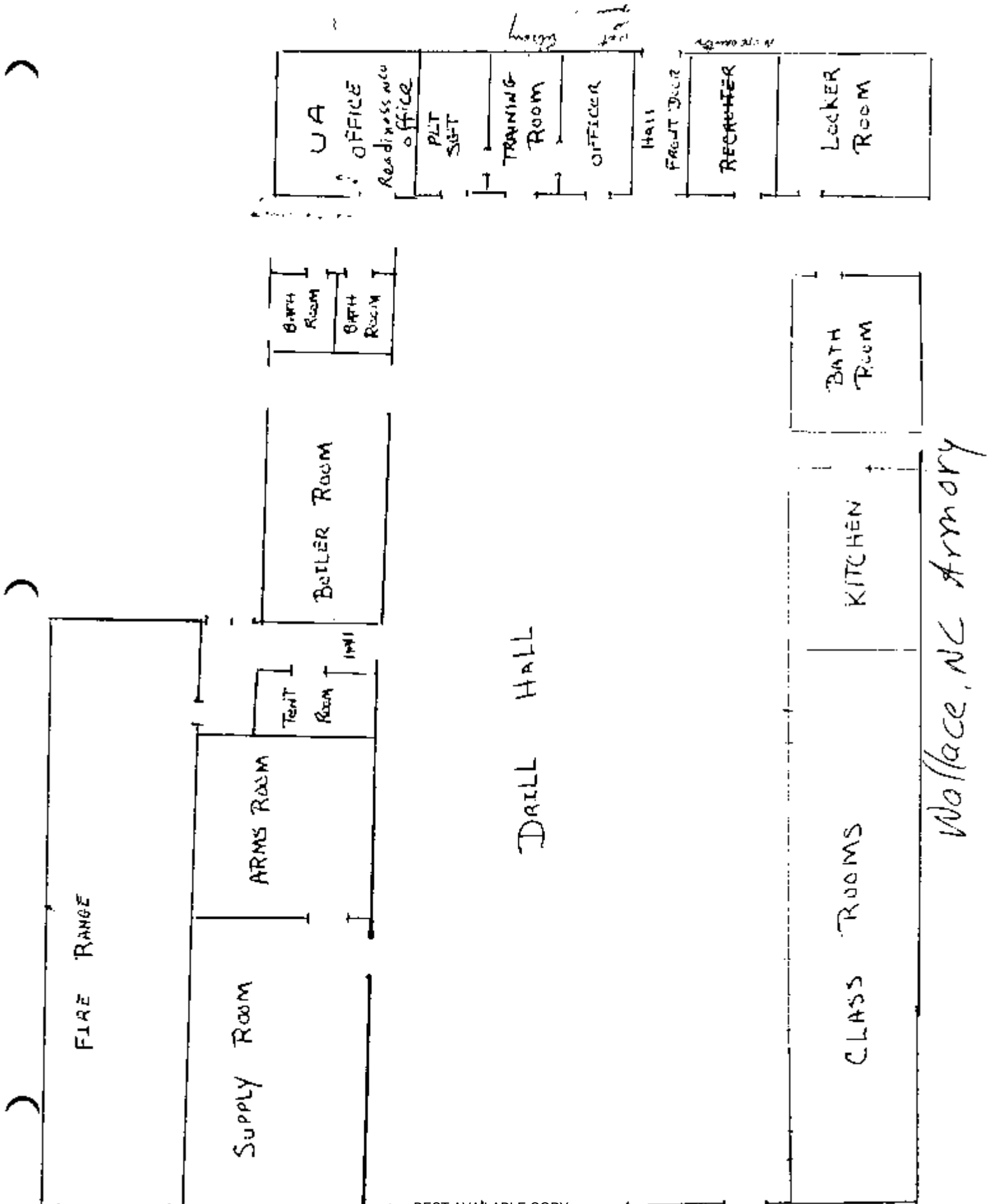


**IFR Front View**

**IFR Rear View**







BEST AVAILABLE COPY

## WORK REQUEST FORM

FORWARD TO: DIRECTOR OF MAINTENANCE  
OTAGNC-AGEO  
4105 Reedy Creek Road  
Raleigh, North Carolina 27607-6410

AGEO CODE #

A2

AGEO CONTROL #

87-21

(A1 - AGEO A2 - Contractor)

AGEO PRIORITY

R

DATE RECEIVED: 8/22/01

AGEO TYPE REPAIR

G-Roof Repair

PN - PRESSING NEED  
EM - EMERGENCY  
R - ROUTINE

AGEO COMMENTS:

Call a roofing contractor and  
get a quote to repair roof  
and send to AGEO

G - GENERAL  
P - PLUMBING  
H - HEATING  
AC - AIR CONDITIONING  
E - ELECTRICAL

PROJECT APPROVED: BMP DISAPPROVED: \_\_\_\_\_ DATE: 12-04-01

ABOVE FOR AGEO USE ONLY

FACILITY LOCATION: BUILDING (ARMORY, OMS, ETC.) CITE  
WALLACE NATIONAL GUARD ARMORY WALLACE, NC 28466 8 AUG 01

PERSON MAKING REQUEST

Non-Responsive

POINT OF CONTACT

Non-Responsive

PHONE

Non-Responsive

PHONE (W) SAME

WORK REQUESTED WITH COMMENTS: (Provide separate work order for each type repair listed above)

ROOF LEAKING. THE LIBRARY ROOM HAS A LEAK IN THE CORNER OF THE ROOM.  
WHEN IT RAINS THE ROOM LEAKS REALLY BAD AND CAUSING THE TILE ON THE  
FLOOR TO COME APART. ALSO THE TILE IN THAT ROOM NEEDS REPLACING.

(Use back for additional information)

WORK PERFORMED:

DATE WORK STARTED: \_\_\_\_\_ COMPLETED BY: \_\_\_\_\_

DATE WORK COMPLETED: \_\_\_\_\_ UNIT REP OR AGEO: \_\_\_\_\_

OTAGNC FORM 420-1M-R (REVISED JAN 00)

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

12 June 2002

MEMORANDUM FOR The North Carolina Army National Guard, Detachment 1,  
Headquarters, Headquarters, Company 1/119<sup>th</sup> Infantry, ATTN: **Non-Responsive** 399  
Minuteman Lane, Washington, North Carolina, 27889.

SUBJECT: Industrial Hygiene Survey of the Washington National Guard Armory,  
Washington, North Carolina.

1. References.

- a. Report submitted 12 June 2002, Industrial Hygiene Survey, LAE Consulting.
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

- b. **Non-Responsive** of LAE Consulting conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor. ***Notify the new unit moving into the Armory of the high Lead (Pb) levels in the deactivated Indoor Firing Range.***

c. Discuss the high lead levels with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact

**Non-Responsive**

Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**LAE Consulting**

1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

6 June 2002

MEMORANDUM FOR: Detachment 1, Headquarters, Headquarters Company 1/119<sup>th</sup> Infantry, ATTN: **Non-Responsive** 399 Minuteman Lane, Washington, North Carolina, 27889

SUBJECT: Industrial Hygiene Survey of Washington National Guard Armory, Washington, North Carolina

1. References.

- a. Title 29, Code of Federal Regulations (CFR) Part 1910, Occupational Safety and Health Administration (OSHA).
- b. AR 40-5, Preventive Medicine, 15 October 1990.
- c. AR 385-10, 23 May 1988, Army Safety Program.
- d. TB MED 503, The Army Industrial Hygiene Program.
- e. Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. National Guard Pamphlet (NG Pam) AR 385-16, Safety, Guidelines for Converting Indoor Firing Ranges to Other Uses.
- h. National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- i. Industrial Ventilation, 22<sup>nd</sup>, Edition, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.

2. Purpose. The purpose of this survey was to conduct a baseline Industrial Hygiene survey of the Washington NG Armory. The facility was visually examined and the Building Custodian was interviewed for historical information related to the building and the operations performed. A diagram of the building can be found in Enclosure 1. A diagram of the deactivated Indoor Firing Range at Enclosure 2. Laboratory results of Lead wipe samples at Enclosure 3. Photographs of the facility can be found in Enclosure 4. Health Hazard Inventories can be found in Enclosure 5. Excerpt of NG Pam 385-16, guidelines for Converting Indoor Firing ranges to Other Uses in enclosure 6.

SUBJECT: Industrial Hygiene Survey of Washington National Guard Armory,  
Washington, North Carolina

3. Background. At the request of **Non-Responsive** of the National Guard Bureau Region South Industrial Hygiene Office, Ms. **Non-Responsive** of LAE Consulting conducted an industrial hygiene survey at the Washington National Guard Armory in Washington, North Carolina on 20 May 2002.

4. Facility Description. This facility currently houses the Detachment 1, HHC, 1/119<sup>th</sup> Infantry Company. The unit will be moving into the Greenville, NC Armory September 2002 and an Water Purification unit (unit designation unknown) will be occupying this Armory. The Armory has two full time personnel. The soldiers perform administrative duties Monday through Friday between 0800 and 2000 hours. The Armory is utilized for drills on the weekend. The building was constructed in the 1975. The facility houses eighteen administrative areas, one kitchen, two classrooms, a Drill hall, Supply Room, Petroleum Oil and Lubricant (POL) storage and Arms Room. The inventory of buildings was given attention during this survey since the operation will be changing in the near future.

5. Findings.

a. A deactivated Indoor Firing Range was converted into a large storage areas. There are plans to renovate the range into a storage and weight room. The range is currently used to store excess equipment and supplies. The baffle backstop is present. The floor of the range is concrete. The walls are cinder block. The range was vacuumed and cleared January 24, 1996. Because the pit area was inaccessible samples were taken from the ceiling baffles and walls. Four wipe samples for Lead were taken (Table 1). All samples were above the clearance level of 200 mg/ft<sup>2</sup> indicated in reference g (enclosure 3).

Table 1

| Sample Number | Sample Location              | Results                  |
|---------------|------------------------------|--------------------------|
| 180           | Baffle trap left side 6 ft   | 19000 ug/ft <sup>2</sup> |
| 181           | Baffle trap middle 4 ft      | 18000 ug/ft <sup>2</sup> |
| 182           | Baffle trap right 2 ft       | 7700 ug/ft <sup>2</sup>  |
| 183           | Range floor near baffle trap | 3500 ug/ft <sup>2</sup>  |

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

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SUBJECT: Industrial Hygiene Survey of Washington National Guard Armory,  
Washington, North Carolina

b. The Drill Hall is used primarily for drills. The floor is concrete. The hall is rented to the general population. Vehicle maintenance is not performed in this area.

c. The building's air conditioning unit has not functioned in two years. The unit is housed in a room that doubles as a Janitorial closet. The room/closet is in disarray with containers of floor wax, cleaners, disinfectants, mops, brooms buckets and other janitorial supply items.

d. A Hazardous Material building is located at the rear of the Armory. The building is new and has a catch basin. POLs are stored in the building. It is unknown if the unit will be taken this building to there new location.

e. Ceiling damage was observed in the Men's latrine. Damage may have occurred from a roof leak that occurred 4 years ago. A work order has been submitted to repair the plaster of the ceiling.

f. Rodent droppings were found in a locker holding Seasoning and Spices. The locker is located in a storage room used to store Pots and Pans.

g. The exhaust in the kitchen was not functioning. Evidence of heavy smoke or fire damage was observed.

#### 6. Recommendations.

a. Recommend the North Carolina Occupational Safety and Health office review the lead wipe clearance sample results of this facility to determine if the range was utilized. If sample results are greater than or equal to 200 mg/ft<sup>2</sup> (reference g.), consider performing addition lead wipe sampling.

b. Continue to discourage the use of the Drill Hall as a vehicle maintenance area.

c. If the comfort level within the Armory decreases consider submitting a work order for the repair of the air conditioning unit. Cleaning and organizing the supplies in this room will decrease the possibility of spills and other safety hazards. Dispose of all cleaning supplies that are either excess or no longer used by the Armory. Removal of litter and dirty mops will preclude the harborage insects and vermin.

I. A. Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551 2717

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SUBJECT: Industrial Hygiene Survey of Washington National Guard Armory,  
Washington, North Carolina

- d. Contact the North Carolina Occupational Health and Safety Office for technical guidance if considering relocation of the Hazard Material building.
- e. Follow up on the work order previously submitted.
- f. Per Tb Med 530, because of the significant potential for contamination, effective measures shall be utilized to minimize the presence of rodents, flies, cockroaches, and other vermin at food service facilities. Highly recommend destroying the items in the locker. Consider purchasing containers that have sealing lids (i.e. Tupperware type). Contact a local or state pest controller to provide technical guidance in an integrated pest management plan/program.
- g. Submit a work order to repair the kitchen exhaust system.

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SUBJECT: Industrial Hygiene Survey of Washington National Guard Armory,  
Washington, North Carolina

7. Technical Assistance. For technical assistance regarding information found in this report please contact **Non-Responsive** of the Southeast Regional Industrial Hygiene Office **Non-Responsive**

**Non-Responsive**

4 Encl

1. Building Diagram
2. HHIM
3. Facility Photos
4. Lead Wipe Results

CF: Safety Occupational Health Office, North Carolina NG  
4105 Reedy Creek Road, Room 1, Raleigh, NC, 27607-6140

LAE Consulting  
1218 Scattered Pines Court, Severn, Maryland 21144  
Telephone: (410) 551-2717

Page 5



# AMA Analytical Services, Inc.

Division 22 Optical Microscopy Services

## CERTIFICATE OF ANALYSIS

**Client:** LAE Consulting  
**Address:** 1218 Seaford Pike Court  
 Sevier, Maryland 21144  
**Attention:** [Redacted]

**Job Name:** Washington, N.C. NG Ammunition  
**Job Location:** Not Provided  
**Job Number:** Not Provided  
**P.O. Number:** Not Provided

**Chain of Custody:** 88412  
**Date Analyzed:** 05/30/2002  
**Person Submitting:** [Redacted]  
**Report Date:** 30-May-02

NY LAP  
 NY ELAP  
 AIHA

### 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 (m <sup>2</sup> ) | Reported Limit | Final Result | Comments |
|---|----------------------|---------------|-------------|----------------|------------------------------|----------------|--------------|----------|
| 0251861   | 180                  | Flame         | Wipe        | 4444           | 1.000                        | 20.00 ug/ltr   | 19000 ug/ltr |          |
| 0251862   | 181                  | Flame         | Wipe        | 4444           | 1.000                        | 20.00 ug/ltr   | 18000 ug/ltr |          |
| 0251863   | 182                  | Flame         | Wipe        | 4444           | 1.000                        | 20.00 ug/ltr   | 18000 ug/ltr |          |
| 0251864   | 183                  | Flame         | Wipe        | 4444           | 1.000                        | 20.00 ug/ltr   | 7700 ug/ltr  |          |
| 0251865   | 184                  | Flame         | Wipe        | 4444           | 1.000                        | 20.00 ug/ltr   | 3500 ug/ltr  |          |
| Analysis Method for Flame (Wipes, Paints, Aids and Soil/Solids): EPA 600/R-93/200(m)-7420<br>Analysis Method For Furnace: Air: EPA 600/R-93/200(m)-7421, Water: EPA 200.9<br>MVA = Not Applicable mg/kg = parts per million (ppm) by weight<br>%Pb = percent lead by weight ug = micrograms ug/L = parts per billion (ppb)<br>Note: All results have two significant digits. Any additional digits shown should not be considered when interpreting the result. |                      |               |             |                |                              |                |              |          |

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 any other 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 the Sample Types, locations and collection protocols are based upon the information provided by the persons submitting, days 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 destroyed in accordance with the appropriate regulatory guidelines, unless otherwise specified by the client. NY LAP Accreditation applies only to published light microscopy of bulk samples and transmission electron microscopy of AHERA air samples.

AMA Analytical Services, Inc. 3475 Forbes Blvd. • Lutherville, MD 20910 • (301) 459-3630 • Fax (301) 459-3632

NY LAP Accreditation



Washington, North Carolina NG Armory







Up and Down Range Viwes of Deactivated  
Indoor Firing Range





Air Handler Unit/Janitorial Closet





Exterior and Interior Views of Hazardous  
Material Storage Building





Ceiling Damage in Men's Latrine



Evidence of Rodent Infestation (Rodent Droppings)  
in Dry Storage Area

# HEALTH HAZARD INFORMATION MODULE: INDUSTRIAL HYGIENE SURVEY

(For use of this form, see HHIM User's Guide)

## SECTION 1. DEMOGRAPHIC DATA

|                                      |   |                                   |
|--------------------------------------|---|-----------------------------------|
| ARLOC                                | INSTALLATION<br>Washington, National Guard<br>Armory, 27889 | BLDG/RM NO.<br>399 Minutemen Lane |
| LOCATION/CODE<br>AA - ADMINISTRATIVE |   | OPERATION/CODE<br>ADO             |
| SURVEY DATE<br>20 MAY 02             |   | EVALUATOR (Initials)<br>LAE       |
| MACOM/CODE                           | SUBMACOM/CODE   | SUPERVISOR<br>Non-Responsive      |
| TELEPHONE/DSN NO.<br>Non-Responsive  | UNIT/ORGANIZATION<br>DETACHMENT 2, AHC 1119 Inf             | RAC<br>4                          |
|                                      | NO. CONTRACTOR(S)<br>2                                      | FREQUENCY (hrs/day)<br>8 hrs/day  |
|                                      | NO. LOC(S)  | NO. OTHER                         |

## SECTION 2. FACILITY DATA

|                  |                    |                   |
|------------------|--------------------|-------------------|
| LAB HOODS        | VAPOR DEGREASERS   | SPRAY BOOTHS      |
| MAINTENANCE BAYS | OPEN SURFACE TANKS | VENTILATION UNITS |

## SECTION 3. SURVEY DATA

| CONTROLS PRESENT | EVALUATION | UNIT CODE | CONTROLS REQUIRED | STATUS |
|------------------|------------|-----------|-------------------|--------|
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |
|                  |            |           |                   |        |

## PERSONAL PROTECTIVE EQUIPMENT (R = Required; U = Utilized)

| GLOVES          | R/U | RESPIRATOR              | NIOSH TC NO. | MANUFACTURER | R/U |
|-----------------|-----|-------------------------|--------------|--------------|-----|
| ACID            | /   | AIRLINE                 |              |              | /   |
| COLD SURFACES   | /   | ABRASIVE BLASTING HOOD  |              |              | /   |
| HOT SURFACES    | /   | DISPOSABLE              |              |              | /   |
| NBC AGENTS      | /   | FULL FACE AIR PURIFYING |              |              | /   |
| OIL             | /   | 1/2 FACE AIR PURIFYING  |              |              | /   |
| SOLVENTS        | /   | POWERED AIR PURIFYING   |              |              | /   |
| SURGICAL GLOVES | /   | 1/4 FACE AIR PURIFYING  |              |              | /   |
|                 |     | SELF CONTAINED          |              |              | /   |

| EYES/FACE        | R/U | HEARING                   | R/U | BODY                      | R/U | HEAD/FIT                    | R/U |
|------------------|-----|---------------------------|-----|---------------------------|-----|-----------------------------|-----|
| CHEMICAL SPLASH  | /   | CANAL CAPS                | /   | APRONS                    | /   | COLD WEATHER BOOTS/HATS     | /   |
| FULL FACE SHIELD | /   | EARPLUGS                  | /   | COLD WEATHER CLOTHING     | /   | HARD HATS                   | /   |
| CHEMICAL/SAFETY  | /   | HELMETS                   | /   | COVERALLS                 | /   | IMPERMEABLE BOOTS           | /   |
| SAFETY/IMPACT    | /   | MUFFS                     | /   | FULL BODY SUIT            | /   | SAFETY/CONDUCTIVE SHOES     | /   |
| WELDING HELMET   | /   | MUFF/EARPLUG COMBO        | /   | HEAT REFLECTIVE VEST/SUIT | /   | SAFETY/NON-CONDUCTIVE SHOES | /   |
|                  |     | MUFF/EARPLUG W/TIME LIMIT | /   | SAFETY BELT/HARNES        | /   |                             | /   |



Safety

GUIDELINES FOR CONVERTING  
INDOOR FIRING RANGES TO OTHER USES

**Summary.** This is a new pamphlet. This guidance prescribes policy, responsibilities, and procedures on how to convert lead-contaminated indoor firing ranges to other uses.

**Applicability.** This guidance applies to all persons responsible for the operation of Army National Guard (ARNG) and Air National Guard (ANG) indoor firing ranges. As no regulation/guidance can foresee all situations that might arise, the following is written in a broad scope and is intended to be interpreted as to the INTENT of the law by health professionals.

**Supplementation.** Supplementation of this guidance is prohibited without prior approval from Chief, National Guard Bureau (NGB-AVN-SI).

**Impact on New Manning System.** This guidance does not contain information that affects the New Manning System.

**Interim changes.** Interim changes are not official unless they are authenticated by the Chief, Administrative Services. Users will destroy interim changes on their expiration date unless sooner superseded or rescinded.

**Suggested Improvements.** The proponent of this publication is the National Guard Bureau. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Chief, National Guard Bureau, Attn: NGB-AVN-SI, 111 South George Mason Drive, Arlington, VA 22204-1382.

**Distribution.** Distribution of this publication is made in accordance with the requirements on DA Form 12-09-E.

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| 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 Protective Equipment          | 14   |
| Point of Contact                       | 15   |

Appendices

- A. Sampling Strategy for Collection of Wipe Samples
- B. Interpretation of Sample Results (Prior to Cleaning)
- C. Interpretation of Sample Results (After Cleaning)
- D. OSHA Instruction CPL 2-2.208
- E. Where to Purchase Sample Media and Containers
- F. AEHA Form 8-R (Bulk Sample Data)
- G. Instructions to Complete AEHA Form 8-R
- H. Examples of Computation of Lead Level from Wipe Sample Results
- I. Supporting Laboratories and Areas Served

Glossary

1. Purpose  
This pamphlet establishes policy and procedures for converting indoor firing ranges to other uses.
2. References  
Related publications are listed below.
  - a. DODI 6055.1 (Department of Defense Occupational Safety and Health (OSH) Program).
  - b. AR 11-34 (The Army Respiratory Protection Program).
  - c. AR 40-5 (Preventive Medicine).
  - d. NGR (AR) 385-15 (Policy, Responsibilities, and Procedures for Inspection/Evaluation and Use of ARNG Indoor Firing Ranges).
  - e. TB MED 502 (Occupational and Environmental Health Respiratory Protection Program).
  - f. USAEHA TG 141 (Industrial Hygiene Air Sampling and Bulk Sampling Instructions).
  - g. Title 29, Code of Federal Regulations (CFR) revision, Part 1910 (Occupational Safety and Health Standards).



BEST AVAILABLE COPY

# **APPENDIX B INTERPRETATION OF SAMPLE RESULTS (PRIOR TO CLEANING)**

**B-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.

**B-2 BETWEEN 201 and 200,000 micrograms/sq ft**

Range must be decontaminated. Continue with cleaning instructions listed in paragraph 16. Sample results will be used to establish a baseline. The baseline sample results will be used to ensure the 75 percent reduction is achieved.

**B-3** [Illegible text block]

**B-4** High sample results may exist due to personnel walking or moving equipment/vehicles over the range surfaces causing the lead dust to be "ground" into the substratum. For example, a maintenance activity may have oversprayed paint or spilled solvents onto the surface which would bond with the lead dust. Consult your Regional Industrial Hygiene Office for specific guidance.

# **APPENDIX C INTERPRETATION OF SAMPLE RESULTS (AFTER CLEANING)**

**C-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. The paint color must contrast the color of the present substratum.

**C-2** [Illegible text block]

below the 75 percent reduction, a more thorough cleaning of the range is required along with resampling until criteria are met.

[Illegible text block]



**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, Company B 1<sup>st</sup> BN  
119<sup>th</sup> Infantry and HHC 1<sup>st</sup> 119<sup>th</sup> Infantry, ATTN: **Non-Responsive** 314 E. Boulevard  
Street, Williamston, NC 27892.

SUBJECT: Industrial Hygiene Survey of the Williamston National Guard Armory,  
Williamston, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
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- b. **Non-Responsive** conducted the survey.

3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. **Submit a work request to repair and or replace the broken Asbestos pipe wrapping around the Boiler. Ensure that proper Personal Protective Equipment is used in the repair, replacement and cleanup process.**

e. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

f. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact [REDACTED]

**Non-Responsive**

**Non-Responsive**

CF: State Safety Office, NC, ATTN: AGSO **Non-Responsive** Occupational Safety and Health Manager, 4105 Reedy Creek Road, Raleigh, NC 27607-6410.

**Non-Responsive**

583 GINGER CAKE RD  
FAYETTEVILLE, GA 30214

**Non-Responsive**

April 4, 2003

**Non-Responsive**

NC Army National Guard Armory  
314 E. Boulevard  
Williamston, NC 27892

**RE: Baseline Industrial Hygiene Survey**

**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**WILLIAMSTON ARMORY**

**WILLIAMSTON, NC**

**DATE:**

**FEBRARY 25,2003**

**PREPARED BY**

**Non-Responsive**

**FAYETTEVILLE, GA 30214**

**Non-Responsive**



## **CONTENTS**

### **1.0 INTRODUCTION**

### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HIIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range, Drill Hall

Attachment 3 Laboratory Reports: Asbestos, Bulk Sample Analysis

Attachment 4 Photographs of Facility

Attachment 5 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Williamston Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Williamston Armory.

The building was finished around 1952. The facility was used by the Co. B 1<sup>st</sup> BN 119<sup>th</sup> Infantry and HHC 1<sup>st</sup> 119<sup>th</sup> Infantry at the time of the survey. The armory is used by the troops of these units for their monthly weekend drills. Personnel informed me that a new unit would be housed in the armory in the near future.

There were 48 troops in Co. B 1<sup>st</sup> BN 119<sup>th</sup> Infantry and 4 full time AGR personnel at the time of the survey. The AGR employee is assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at the Administration Office. There were two light fixtures out in this office. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, about five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool consists of 5T trucks, 2.5T trucks and pick-up trucks. PMCS is performed at the armory. Other repair jobs are performed at the OMS 19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation during weekend drills. No cooking is done in the armory. They use catering services to provide food for the troops. The Drill Hall is used to clean weapons about 3 times a year. Bay (roll-up) door and windows are kept open when the weapons are cleaned. There are no exhaust ventilation fans in the Drill Hall. The Drill Hall is rented for wedding receptions and tool shows. Renters bring their own food.

#### **Boiler Room**

The boiler wrapping is broken at the front side. It is broken considerably. Survey of the Boiler Room shows the pipe wrapping is also broken (See pictures). A bulk sample was collected from the broken boiler and pipe wrapping to analyze for asbestos. Result of the analysis can be found on attachment 3.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. Personnel did not know when it was deactivated or "sanitized". They store equipment, tables, chairs and lockers. One section is used as NBC room. The

floor is concrete. Six wipe samples were taken from the IFR. Two of the six samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

| Sample Number | Sample Location                   | Results |
|---------------|-----------------------------------|---------|
| 61            | Bullet backstop                   | 5620ug  |
| 62            | Floor in front of bullet backstop | 1340ug  |
| 63            | Item 1 stored in IFR              | 164ug   |
| 64            | Item 2, stored in I               | 81ug    |
| 65            | Wall next to exit door            | 82ug    |
| 66            | Blank                             | BLR     |

#### **Drill Hall Laboratory Sampling**

**Table 2**

| Sample Number | Sample Location     | Results |
|---------------|---------------------|---------|
| 71            | Next to window      | BRL     |
| 72            | Top of coke machine | 33ug    |
| 73            | Water fountain      | BRL     |
| 74            | Kitchen area        | BRL     |
| 75            | Blank               | BRL     |

#### **Asbestos Sampling**

A sample for asbestos was taken from a broken pipe wrapping in the Boiler Room and from broken wrapping of the boiler. The result of the analysis was positive for asbestos for both places tested. See laboratory report in attachment 3.

### Weapons Vaults

The Williamston Armory has a weapon storage vault located in the Supply Room. The weapons list includes M-16s, 240 Bravo, 249 Saw, and grenade launcher. The dehumidifier works well and is always turned on. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall.

### A/C Heating System

Individual window A/C units cool the administrative offices and classroom. The armory has only one Central A/C unit. This is a newer unit that is used to cool Supply Room. There are heat radiators to heat the facility. Personnel reported that their effectiveness of the heating system varies from office to office sometimes. It can be warmer in some areas than in others.

### Material Safety Data Sheets

A private contractor recently updated the MSDS Book. It is kept on a wall in the Drill Hall. There is an oil shed outside. There is a Hazardous Materials Inventory List located inside the oil shed. The last supply sergeant attended Hazardous Materials Training but he has been transferred to another armory.

### Light Readings

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3

**Table 3**

| <b>Location</b>           | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|---------------------------|--|---|
| ADO Administration Office | 15-50 (Avg. 35)                        | 50-100  |
| ADO Supply Room           | 9-50 (Avg. 29)                         | 20  |
| ADO Non-Responsive        | 40-60 (Avg. 52)                        | 50-100  |
| ADO                       | 44-56 (Avg. 50)                        | 50-100  |
| Classroom                 | 63-132 (Avg. 96)                       | 50-100  |
| Recruiter Office          | 31-68 (Avg. 50)                        | 50-100  |

|            |                   |        |
|------------|-------------------|--------|
| CO Office  | 46-62 (Avg. 53)   | 50-100 |
| Drill Hall | 66-186 (Avg. 110) | 30     |

Light measurements were below IES guidelines at the Administration Office. There were two light fixtures out in this office. The other areas tested were within IES minimum standards. Consideration should be given to replacing burned out light fixtures and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### 4. REFERENCES

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), /Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.
- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**



## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out light fixtures in the Administration Office are replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.
- Monitoring of heating system to determine if it will need to be repaired, so the temperature can be controlled throughout the facility.
- A work request should be submitted to the appropriate state office for the repair and/or the replacement of the broken boiler and pipe wrapping in the Boiler Room due to the presence of asbestos in these areas.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

\*SEE PRIVACY STATEMENT ON REVERSE.  
(For use of this form, see FHIM User's Instructions.)

1. ARLOC 37000 2. INSTALLATION Williamston NC Armory 3. BLDG/RM NUMBER Adm. Office  
4. LOCATION/CODE At 5. OPERATION/CODE Ad 6. DESCRIPTION Primary scheduling, Computer work 3-4 hrs/day  
7. MACOM/CODE NS 8. SUPERVISOR Non-Responsive  
9. TELEPHONE/AUTOVON NUMBER Non-Responsive 10. RAC Non-Responsive 11. FREQUENCY (Hrs Per Day) Non-Responsive  
12. NO CIV(S) Non-Responsive 13. NO M Non-Responsive 14. NO CONTRACTOR(S) Non-Responsive 15. NO LOC(S) Non-Responsive 16. NO OTHER Non-Responsive

a. LAB HOODS \_\_\_\_\_ b. VAPOR DEGREASERS \_\_\_\_\_ c. MAINTENANCE BAYS \_\_\_\_\_ d. SPRAY BOOTHS \_\_\_\_\_  
e. OPEN SURFACE TANKS \_\_\_\_\_ f. VENTILATION UNITS \_\_\_\_\_

a. SURVEY DATE 2-25-63 b. EVALUATOR (INITIALS) \_\_\_\_\_

| c. CONTROLS PRESENT | d. EVALUATION | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS |
|---------------------|---------------|--------------|----------------------|-----------|
| Lighting            | 15-50; Avg 35 | FC           | 50-100               | Inadeq.   |
|                     |               |              |                      |           |
|                     |               |              |                      |           |
|                     |               |              |                      |           |
|                     |               |              |                      |           |

## 1. RESPIRATOR

DISPOSABLE

#### 4. FACE AIR PURIFYING

#### 4. FACE AIR PURIFYING

**FULL FACE AIR PURIFYING**

**POWERED AIR PURIFYING**

AIRLINE

**SELF-CONTAINED**

### ABRASIVE BLASTING HOOD

MANUFACTURER

NIOSH (C-NO)

iii.

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                 | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|-------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                  | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALL                | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT          | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/<br>HARNESS | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT  | /   |                            | /   |
| NBC AGENTS    | /   |                  |     |            |     |                         |     |                            |     |

## 4. CAS CODE

#### D. HAZARD DESCRIPTION

c. PAC or EPC

4. MEDICAL SURVEILLANCE RECOMMENDED (YES or NO)



## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: Williamston, NC Armory  
 Project No:  
 PO No:

Lab Order: 0304198  
 Date Received: 4/7/2003 2:40:00  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF   | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|------|----------------|---------------|
| 0304198-001A  | 61               | 5620    | µg, Total | 11.2 | 3.97 | 2/25/2003      | 4/9/2003      |
| 0304198-002A  | 62               | 1340    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-003A  | 63               | 164     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-004A  | 64               | 81.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-005A  | 65               | 82.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-006A  | 66               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-007A  | 71               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-008A  | 72               | 33.0    | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-009A  | 73               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-010A  | 74               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |
| 0304198-011A  | 75               | BRL     | µg, Total | 2.83 | 1    | 2/25/2003      | 4/9/2003      |

Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor



**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
 3785 Presidential Parkway  
 Atlanta, GA 30340  
 Tel: (770) 457-8177  
 Fax: (770) 457-8188

AES Job Number: B13751  
 Page 1 of 2 Total Samples  
 Friday, April 11, 2003



### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
 Project Name: Williamston NC Armory  
 Client Sample ID: 76  
 Location: Boiler wrapping - broken  
 Project Number:  
 AES Lab ID: 135726

Sample Description: Gray semi-hard silty to fibrous

All percentages given below are visually estimated by volume

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         | 20 | Vermiculite:          |    |
| Amosite:            | 2  | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           |    |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       |    | Bitumen:              |    |
| Fiberglass:         |    | Resilient Material:   |    |
| Cellulose:          |    | Glue:                 |    |
| Animal Hair:        |    | Binders:              | 78 |
| Antigorite:         |    |                       |    |

#### COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993. This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



ANALYTICAL ENVIRONMENTAL SERVICES, INC.  
3785 Presidential Parkway  
Atlanta, GA 30340  
Tel: (770) 457-8177  
Fax: (770) 457-8188

AES Job Number: B13751  
Page 2 of 2 Total Samples  
Friday, April 11, 2003



### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
Project Name: **Winchester NO 7 Ammunition**  
Client Sample ID: 77  
Location: Boiler room - broken pipe wrapping  
Project Number:  
AES Lab ID: 135727

Sample Description: Gray semi-hard silty to fibrous

All percentages given below are visually estimated by volume

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         | 20 | Vermiculite:          |    |
| Amosite:            | 5  | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           |    |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       |    | Bitumen:              |    |
| Fiberglass:         |    | Resilient Material:   |    |
| Cellulose:          |    | Glue:                 |    |
| Animal Hair:        |    | Binders:              | 75 |
| Antigorite:         |    |                       |    |

COMMENTS:

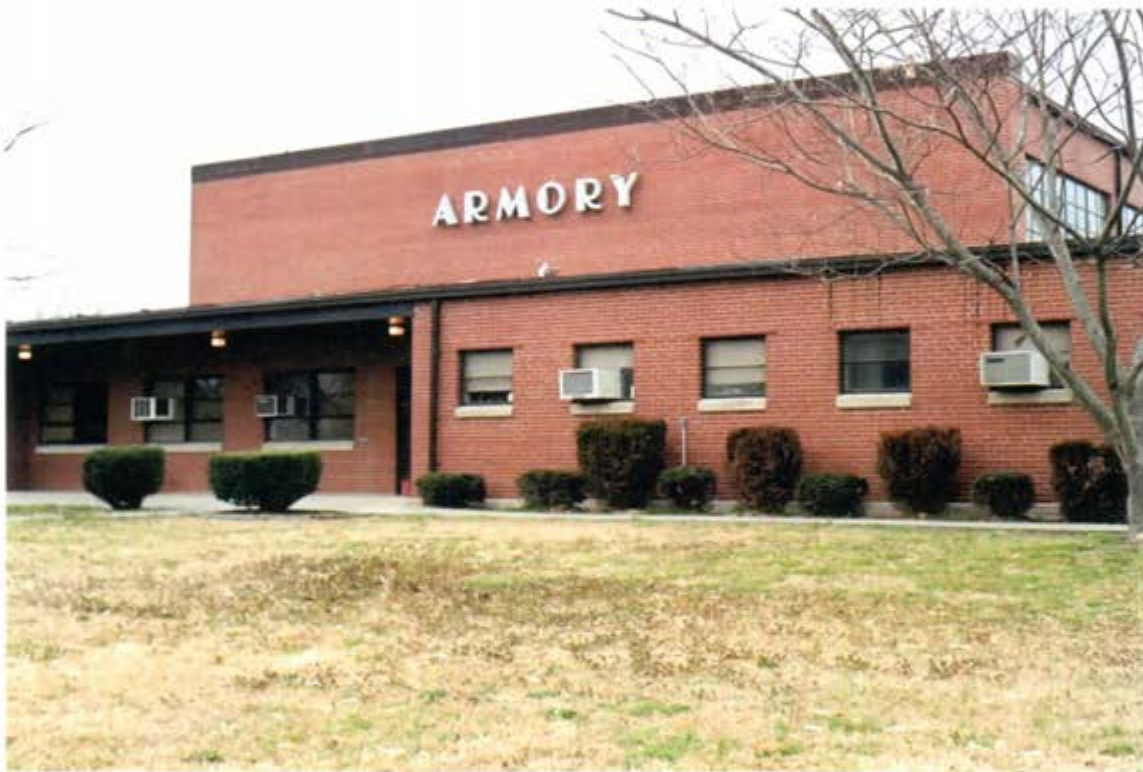
It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993. This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.





**Williamston, NC  
Armory**



## Drill Hall





**IFR, Front View**

**IFR, Rear View**







**IFR, Sampling Area**

**IFR, Bullet  
Backstop**





**Broken Wrapping  
Boiler**

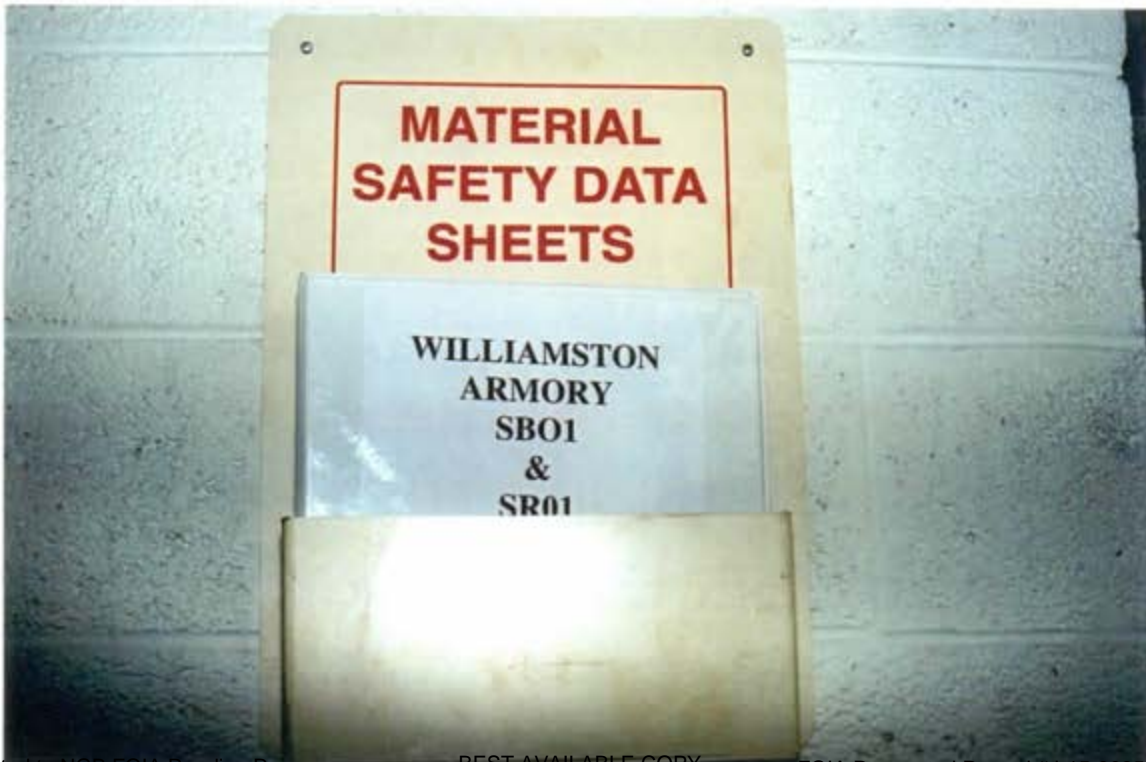






**Broken Pipe Wrapping  
Boiler Room**

## **MSDS Book**





BEST AVAILABLE COPY



**A/C Window Unit  
Office**

**Heat Radiator**



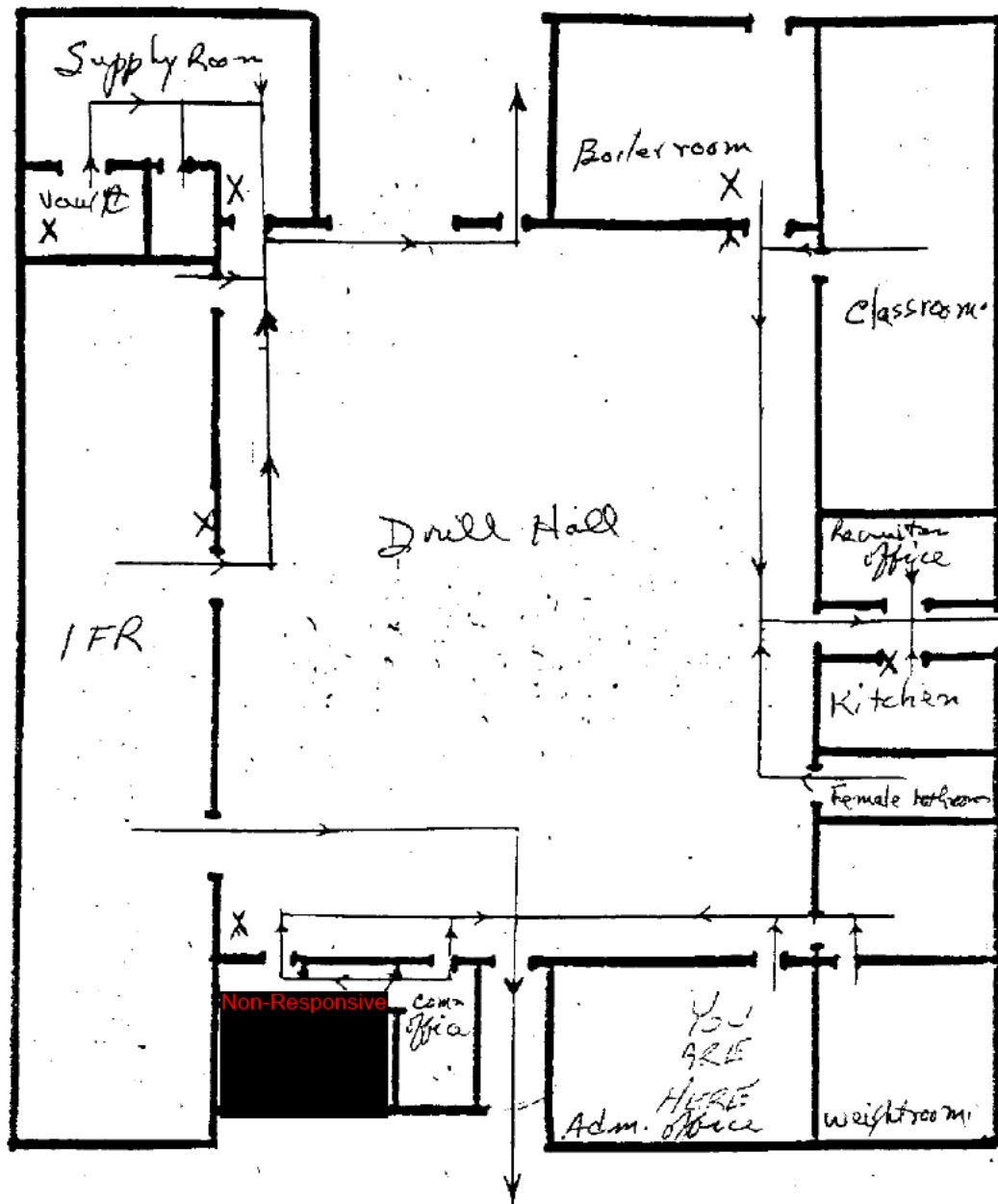
BEST AVAILABLE COPY



**Oil Shed**

**Motor Pool**





**FIRE EVACUATION PLAN**  
**IN CASE OF FIRE DIAL 792-8151**  
 792-8151

(X) FIRE EXTINGUISHER LOCATIONS

Williamston, NC. ARMORY

**NATIONAL GUARD REGION SOUTH  
INDUSTRIAL HYGIENE OFFICE  
510 PLAZA DRIVE, SUITE 1530  
COLLEGE PARK, GA 30349**

NGB-AVN-SI

May 9, 2003

MEMORANDUM FOR The North Carolina Army National Guard, 878<sup>th</sup> QM Team and 882<sup>nd</sup> QM Detachment, ATTN: **Non-Responsive** 307 Cherry Street, Woodland, NC 27897.

SUBJECT: Industrial Hygiene Survey of the Woodland National Guard Armory, Woodland, North Carolina.

1. References.

- a. Report submitted 4 April 2003, Industrial Hygiene Survey, **Non-Responsive**
- b. OSHA Standards 29 CFR (Code of Federal Regulations), General Industry, revised 1988.
- c. AR 40-5, Preventive Medicine, October 1990.
- d. AR 11-34, 15 February 1990, The Army Respiratory Protection Program.
- e. AR 385-10, 23 May 1988, Army Safety Program.
- f. Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- g. TB MED 530, The Army Industrial Hygiene Program.
- h. Title 29 Code of Federal regulation (CFR), 1989 rev, Part 1910.94 (c) (6) Table G-10, Ventilation.
- i. Industrial Ventilation, 21st ed, 1992, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio.
- j. IES Lighting Handbook, Application Volume, 1981, Illumination Engineering Society of North America.

2. General.

a. At the request of the North Carolina State Safety and Occupational Health Office and the Region South Industrial Hygiene Office a Service Contract was put together to conduct Health Hazard Information module (HHIM) Field surveys and IH surveys at the North Carolina National Guard Armories.

b. **Non-Responsive** conducted the survey.



3. Findings. All HHIM field survey forms and survey findings of the report are enclosed. (See ENCL. 1)

4. Recommendations.

a. Follow all recommendations made in reference 1. a., requesting industrial hygiene (IH) services where needed to complete the recommendations.

b. Use the report to help in correcting all deficiencies noted by the contractor.

c. **Discuss the high lead levels in the deactivated Indoor Firing Range with the Safety and Occupational Health Office, the Facility Management Office and the Environmental Office. Request help in eliminating possible employee lead exposures. Use NG PAM 385-15 and NG PAM 385-16 as guides to clean and convert the indoor firing range.**

d. Consider additional Industrial Hygiene services to monitor operations that were not looked at or surveyed during the contract visit, especially if this will help eliminate health hazards and reduce medical surveillance cost.

e. To execute your responsibilities in correcting all deficiencies and meeting all standards coordinate with the Occupational Health Nurse and the Occupational Safety and Health Office for technical guidance.

5. If additional information is needed about the contractors report, please contact [REDACTED]

**Non-Responsive**

**Non-Responsive**

305 GINGER CREEK RD  
FAYETTEVILLE, GA 30214

**Non-Responsive**

April 4, 2003

**Non-Responsive**

NC Army National Guard Armory  
307 Cherry St.  
P.O. Box 100  
Woodland, NC 27897

**RE: Baseline Industrial Hygiene Survey**



**FINAL REPORT**

**FOR**

**BASELINE INDUSTRIAL HYGIENE SURVEY**

**NORTH CAROLINA ARMY NATIONAL GUARD**

**WOODLAND ARMORY**

**WOODLAND, NC**

**DATE:**

**FEBRARY 24,2003**

**PREPARED BY**

**Non-Responsive**

365 GINGER CREEK RD  
FAYETTEVILLE, GA 30214

**Non-Responsive**

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### **2.0 INSTRUMENTATION**

### **3.0 FINDINGS**

### **4.0 REFERENCES**

Attachment 1 HHIM Forms

Attachment 2 Laboratory Reports: Deactivated Indoor Firing Range, Drill Hall

Attachment 3 Laboratory Reports: Asbestos, Bulk Sample Analysis

Attachment 4 Photographs of Facility

Attachment 5 Schematic Drawing of Facility

## 1.0 INTRODUCTION

At the request of the National Guard Bureau South Region Industrial Hygiene Office, **Non-Responsive** performed a Baseline Industrial Hygiene Survey at the NC ARNG Woodland Armory. The purpose of the survey was to perform a baseline survey to evaluate health hazards, controls present in the work site, collect lead swipe samples from renovated/inactive or closed Indoor Firing Ranges and perform, illumination survey. And to make recommendations regarding health hazards associated with the work at the Woodland Armory.

The building was finished in 1961. The facility houses the 878<sup>th</sup> QM Team and the 882<sup>nd</sup> QM Detachment. The armory is used by the troops of the 878<sup>th</sup> QM Team and the 882<sup>nd</sup> QM Detachment for their monthly weekend drills. This is a new water purification unit that has been assigned to the Woodland Armory.

The 878<sup>th</sup> QM Team with 21 troops and the 882<sup>nd</sup> QM Detachment with 24 troops had 1 full time AGR personnel at the time of the survey. The AGR employee is assigned to perform administrative duties Monday-Friday 8:00am-4:30pm. The facility houses administrative areas, a Drill Hall, Classroom, a Supply Room, a Weapons Vault, a Boiler Room a deactivated indoor firing range and a kitchen. A schematic drawing of the facility can be found in Attachment 5.

The facility was visually examined and personnel consulted to assess potential hazards present. There were about 4 or 5 inches of water flooding the floor in front of the bullet backstop. Personnel stated that the water comes from under the floor when it rains. At the time of the survey the water accumulated in this area looked dirty. Health Hazard Information Modules were completed. Illumination survey was performed throughout the facility.

## 2.0 INSTRUMENTATION/CALIBRATION

The following instrumentation was used to obtain light measurements. The instrument used has been calibrated and was operated according to the manufacturer's recommendations:

- Sper Scientific Light Meter

### **3.0 FINDINGS**

#### **Illumination**

Illumination levels were recorded in administration offices, classrooms, drill hall, and supply room. Light measurements were below IES guidelines at both Classrooms and at the 878<sup>th</sup> Office. There was a light bulb out in the Drill Hall. The other areas tested were within IES minimum standards. See Light Readings Table at the end of this section.

#### **Administration**

Personnel perform administrative duties that consist of reading, handling and generating paper work, and supply room tasks. Computer use comprises a large portion of the working day, about five hours per day. This continuous use of computers can, in the long run, lead to eyestrain and hand/wrist or shoulder soreness.

#### **Motor Pool**

The motor pool is located in a fenced area in the rear of the building. The motor pool consists of one pick-up truck. More vehicles will be assigned when this new unit is well established. PMCS performed at the armory. Other repair jobs are performed at the OMS 19 in Ahoskie.

#### **Drill Hall**

The Drill Hall is located in the center of the building. It is used primarily for formation, inspection, training and eating during weekend drills. No cooking is done in the armory. They use catering services to provide food for the troops. The Drill Hall is used to clean weapons. Bay (roll-up) door and windows are kept open when the weapons are cleaned. There are no exhaust ventilation fans in the Drill Hall. The Drill Hall is rented for bingo, to churches, ROTC and tool sales about 4-5 times a year. Renters bring their own food.

#### **Boiler Room**

The boiler wrapping is not broken. It uses fuel oil from a tank outside. Personnel stated that it heats well. Survey of the Boiler Room shows the wrapping below one of the valves is broken. A bulk sample was collected on this area to analyze for asbestos. Result of the analysis can be found on attachment 3.

#### **Deactivated Indoor Firing Range**

A deactivated Indoor Firing Range (IFR) was been converted into a storage area. Personnel reported that it was deactivated about 12 years ago. They store mainly

tents. There were many metal shelves and metal cabinets or lockers. The floor is concrete. There is a water leakage coming from under ground right in front of the bullet backstop. There were about 4-5 inches of water (deep) covering the entire floor in front of the bullet backstop. It looks dirty and cloudy. I was unable to reach the bullet backstop due to water accumulation. This problem has already been reported to the state engineer office. Five wipe samples were taken from the IFR. Four of the five samples were above the clearance level of 200ug/ft<sup>2</sup>. See table 1 for results.

**Table 1**

| Sample Number | Sample Location                                  | Results |
|---------------|--|---------|
| 21            | At the edge of floor in front of bullet backstop | 6510ug  |
| 22            | Item 1 stored in IFR                             | 3130ug  |
| 23            | Item 2, stored in IFR                            | 570ug   |
| 24            | Wall next to exit door                           | 213ug   |
| 25            | Blank  | BRL     |

**Drill Hall and Kitchen Laboratory Sampling****Table 2**

| Sample Number | Sample Location                | Results |
|---------------|--------------------------------|---------|
| 31            | Small table                    | 398ug   |
| 32            | Front of storage area          | 53ug    |
| 33            | Kitchen                        | BRL     |
| 34            | Drill Hall next to Supply Room | 85ug    |
| 35            | Blank                          | BRL     |

**Asbestos Sampling**

A sample for asbestos was taken from a broken pipe wrapping in the Boiler Room and from broken floor tiles in the offices. The result of the analysis was negative for asbestos for the pipe wrapping and positive for asbestos for the broken tiles. See laboratory report in attachment 3.

**Weapons Vaults**

The Woodland Armory has a weapon storage vault located in the Supply Room. The weapons list includes only M-16s. The dehumidifier works well and is always turned on. Personnel stated that accountability and issuing of weapons are performed in this area. Weapons are cleaned in the Drill Hall.

**A/C Heating System**

Individual window A/C units cool the administrative offices and classroom and the day room. The armory has only one Central A/C unit. This is a newer unit that is used to cool Supply Room. The window A/C unit in the day room had a bad compressor at the time of the survey. A work order request was placed last August or September for its repair. It had not been repaired at the time of the survey.

**Material Safety Data Sheets**

A private contractor recently updated the MSDS Book. There is a Hazardous Materials Inventory List for household goods located in the utility room and one for chemicals located in the oil shed. **Non-Responsive** attended Hazardous Materials Training in 2001.

**Light Readings**

Light measurements were taken in various locations throughout the facility. The results were compared to guidelines recommended by the Illuminating Engineering Society (IES). The results of the survey are shown in Table 3



**Table 3**

| <b>Location</b>             | <b>Light Reading<br/>(footcandles)</b> | <b>IES<br/>Recommendation<br/>(footcandles)</b> |
|-----------------------------|--|---|
| ADO SFC Stouffer Office     | 43-61 (Avg. 50)                        | 50-100  |
| ADO Supply Room             | 11-151 (Avg. 53)                       | 20  |
| Distribution (Copying) Room | 53-95 (Avg. 67)                        | 50-100  |
| Classroom 1                 | 28-45 (Avg. 35)                        | 50-100  |
| Classroom 2                 | 30-63 (Avg. 47)                        | 50-100  |
| 878 <sup>th</sup> Office    | 39-48 (Avg. 42)                        | 50-100  |
| 882 <sup>nd</sup> Office    | 48-87 (Avg. 69)                        | 50-100  |
| Drill Hall                  | 21-46 (Avg. 32)                        | 30  |

Light measurements were below IES guidelines at both Classrooms and at the 878<sup>th</sup> Office. The other areas tested were within IES minimum standards. Consideration should be given to replace burned out bulb in the Drill Hall and provide supplemental lighting in those areas that were below the recommended standard. ANSI RP7-1991.

#### **4. REFERENCES**

- Guide to Occupational Exposure 2000, American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, Ohio.
- American National Standards Institute (ANSI), Illuminating Engineering Society (IES), Industrial Lighting 1991.
- National Institute for Occupational Safety and Health (NIOSH), (76-130) Technical Information, Lead Exposure and Design Considerations for Indoor Firing Ranges GPO, 1975.
- Title 29, Code of Federal Regulations (CFR). 1999, revision, Part 1910. Occupational Safety and Health Standards
- AR 40-5, Preventative Medicine, 15 October 1990.
- AR 385-10, The Army Safety Program, 23 May 1988.
- National Safety Council, Fundamentals of Industrial Hygiene, 4<sup>th</sup> edition, 1996.

- AR 385-16, National Guard Pamphlet, Safety Guidelines for Converting Indoor Firing Ranges to Other uses.
- TB MED 503, The Army Industrial Hygiene Program, February 1985.
- Department of the Army Pamphlet (DA PAM) 40-501, 27 August 1991, Hearing Conservation.
- Title 29 CFR, Part 1910.1200, The Hazard Communication Standard.

**Non-Responsive**

## RECOMMENDATIONS

- Provide supplemental lighting in those areas where light measurements were below the recommended standard (as represented in Table 3). Recommend that burned out bulb in the Drill Hall are replaced.
- Recommend that when using computers for extended periods of time, personnel should take occasional breaks and change position to minimize the possibility of eyes and/or hands/wrist injury.
- Continue to ensure that weapon maintenance and cleaning is done in a well-ventilated area. Continue to practice good personal hygiene by washing hands after handling and cleaning weapons and ammunition.
- Ensure that personnel and troops have knowledge of the location of the MSDS book, and is enrolled in hazardous materials safety training.
- A new request should be re-submitted to the appropriate state office for the repair of the A/C window unit in the day room if it has not been repaired already
- A new request should be re-submitted to the appropriate state office for the repair of the water leak in front of the bullet backstop and for the subsequent removal of the water accumulated there.
- A work request should be submitted to the appropriate state office for the repair and/or the replacement of the broken and missing floor tiles.
- That the state Occupational Safety and Health office review the lead swipe clearance sample results of this facility to determine if the IFR will need further decontamination.

\*SEE PRIVACY ACT STATEMENT ON REVERSE.  
(For use of this form, see the instructions.)

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**SECTION 1. DEMOGRAPHIC DATA**

a. ARLOC 3700 b. INSTALLATION Woodland, NC Armory c. BLDG/RM NUMBER Com. number to  
d. LOCATION/ZONE AA e. OPERATION/CODE AD f. DESCRIPTION with unit.  
Administration, Training & Supply, Readiness  
g. MACOM/CODE NS h. SUPERVISOR Non-Responsive  
i. TELEPHONE/AUTOVON NUMBER Non-Responsive j. FREQUENCY (Hz) Non-Responsive  
k. NO CIV(S) Non-Responsive l. NO MIL Non-Responsive m. NO CONTRACTOR(S) Non-Responsive n. NO LOC(S) Non-Responsive o. NO OTHER Non-Responsive

**SECTION 2. IH STAFFING DATA**

a. LAB HOODS Non-Responsive b. VAPOR DEGREASERS Non-Responsive c. MAINTENANCE BAYS Non-Responsive d. SPRAY BOOTH-S Non-Responsive  
e. OPEN SURFACE TANKS Non-Responsive f. VENTILATION UNITS Non-Responsive

**SECTION 3. SURVEY DATA**

a. SURVEY DATE 2-24-03 b. EVALUATOR (INITIALS) Non-Responsive

| c. CONTROLS PRESENT | d. EVALUATION        | e. UNIT CODE | f. CONTROLS REQUIRED | g. STATUS    |
|---------------------|----------------------|--------------|----------------------|--------------|
| <u>Lighting</u>     | <u>43-61; Aug 50</u> | <u>FC</u>    | <u>50-100</u>        | <u>Adgt.</u> |
|                     |                      |              |                      |              |
|                     |                      |              |                      |              |
|                     |                      |              |                      |              |
|                     |                      |              |                      |              |

**h. PERSONAL PROTECTIVE EQUIPMENT (R=REQUIRED; A=AVAILABLE)**

| 1. RESPIRATOR           | MANUFACTURER | NIOSH TC NO | A/A |
|-------------------------|--------------|-------------|-----|
| DISPOSABLE              |              |             |     |
| 4 FACE AIR PURIFYING    |              |             |     |
| 6 FACE AIR PURIFYING    |              |             |     |
| FULL FACE AIR PURIFYING |              |             |     |
| POWERED AIR PURIFYING   |              |             |     |
| AIRLINE                 |              |             |     |
| SELF-CONTAINED          |              |             |     |
| ABRASIVE BLASTING HOOD  |              |             |     |

| 2. GLOVES     | R/A | 3. EYES/FACE     | R/A | 4. HEARING | R/A | 5. BODY                | R/A | 6. HEAD/FOOT               | R/A |
|---------------|-----|------------------|-----|------------|-----|------------------------|-----|----------------------------|-----|
| ACID          | /   | CHEMICAL/SPLASH  | /   | MUFFS      | /   | APRONS                 | /   | HARD HATS                  | /   |
| OIL           | /   | SAFETY/IMPACT    | /   | EARPLUGS   | /   | COVERALLS              | /   | IMPERMEABLE BOOTS          | /   |
| SOLVENTS      | /   | CHEMICAL/SAFETY  | /   | CANAL CAPS | /   | FULL BODY SUIT         | /   | SAFETY CONDUCT SHOES       | /   |
| HOT SURFACES  | /   | FULL FACE SHIELD | /   | HELMETS    | /   | SAFETY BELT/HARNESS    | /   | SAFETY/NONCONDUCTIVE SHOES | /   |
| COLD SURFACES | /   | WELDING HELMET   | /   |            |     | HEAT REFLECT VEST/SUIT | /   |                            |     |
| NBC AGENTS    | /   |                  |     |            |     |                        |     |                            |     |

**SECTION 4. HAZARD INVENTORY DATA**

| a. CAS CODE   | b. HAZARD DESCRIPTION                                 | c. PAC or EPC | d. MEDICAL SURVEILLANCE RECOMMENDED YES or NO |
|---------------|---|---------------|---|
| <u>10 VDT</u> | <u>Daily use of computer for long periods of time</u> | <u>3</u>      |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |
|               |   |               |   |



## Analytical Environmental Servs, Inc.

Date: 4/10/2003

TOTAL LEAD IN WIPE SAMPLES  
N7082

CLIENT: **Non-Responsive**  
 Project: **woodland, NC Armory**  
 Project No:  
 PO No:

Lab Order: 0304200  
 Date Received: 4/7/2003 2:40:00  
 Matrix: Wipe  
 Analyst: **Non-Responsive**

| Laboratory ID | Client Sample ID | Results | Units     | MDL  | DF   | Date Collected | Date Analyzed |
|---------------|------------------|---------|-----------|------|------|----------------|---------------|
| 0304200-001A  | 21               | 6510    | µg, Total | 12.0 | 4.24 | 2/24/2003      | 4/9/2003      |
| 0304200-002A  | 22               | 3130    | µg, Total | 7.95 | 2.81 | 2/24/2003      | 4/9/2003      |
| 0304200-003A  | 23               | 570     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-004A  | 24               | 213     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-005A  | 25               | BRL     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-006A  | 31               | 398     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-007A  | 32               | 53.0    | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-008A  | 33               | BRL     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-009A  | 34               | 85.0    | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |
| 0304200-010A  | 35               | BRL     | µg, Total | 2.83 | 1    | 2/24/2003      | 4/9/2003      |

Qualifiers: MDL - Method Detection Limit  
 ND - Not Detected at the Reporting Limit

DF - Dilution Factor





**ANALYTICAL ENVIRONMENTAL SERVICES, INC.**  
 3785 Presidential Parkway  
 Atlanta, GA 30340  
 Tel: (770) 457-8177  
 Fax: (770) 457-8188

AES Job Number: B13750  
 Page 2 of 2 Total Samples  
 Friday, April 11, 2003



### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
 Project Name: Woodland, NC Armory  
 Client Sample ID: #37  
 Location: Broken floor tiles - offices  
 Project Number:  
 AES Lab ID: 135725

Sample Description: Brown hard compact partly granular with fibers and bitumen

**All percentages given below are visually estimated by volume**

| ASBESTOS FIBERS     |   | NON-FIBROUS MATERIALS |    |
|---------------------|---|-----------------------|----|
| Chrysotile:         | 5 | Vermiculite:          |    |
| Amosite:            |   | Biotite:              |    |
| Crocidolite:        |   | Mica:                 |    |
| Anthophyllite:      |   | Perlite:              |    |
| Tremolite:          |   | Aggregates:           | 45 |
| Actinolite:         |   | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |   | OTHERS                |    |
| Synthetics:         |   | Aluminum:             |    |
| Mineral Wool:       |   | Bitumen:              | 2  |
| Fiberglass:         |   | Resilient Material:   |    |
| Cellulose:          | 1 | Glue:                 |    |
| Animal Hair:        |   | Binders:              | 47 |
| Antigorite:         |   |                       |    |

COMMENTS: Floor tile contains 5% chrysotile. Bitumen: No asbestos detected.

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

# Non-Responsive

All percentages given are visually estimated by volume.  
 Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993. This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



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Tel: (770) 457-8177  
Fax: (770) 457-8188

AES Job Number: B13750  
Page 1 of 2 Total Samples  
Friday, April 11, 2003

NVLAP  
Lab # 102082-0

### BULK SAMPLE ANALYSIS

Client Name: **Non-Responsive**  
Project Name: Woodland, NC Armory  
Client Sample ID: #36  
Location: Broken wrapping - boiler room  
Project Number:  
AES Lab ID: 135724

Sample Description: Layered: 1) Brown semi-hard fibrous; 2) Gray semi-hard silty to fibrous

All percentages given below are visually estimated by volume

| ASBESTOS FIBERS     |    | NON-FIBROUS MATERIALS |    |
|---------------------|----|-----------------------|----|
| Chrysotile:         |    | Vermiculite:          |    |
| Amosite:            |    | Biotite:              |    |
| Crocidolite:        |    | Mica:                 |    |
| Anthophyllite:      |    | Perlite:              |    |
| Tremolite:          |    | Aggregates:           |    |
| Actinolite:         |    | Styrofoam:            |    |
| NON-ASBESTOS FIBERS |    | OTHERS                |    |
| Synthetics:         |    | Aluminum:             |    |
| Mineral Wool:       |    | Bitumen:              |    |
| Fiberglass:         |    | Resilient Material:   |    |
| Cellulose:          | 40 | Glue:                 |    |
| Animal Hair:        |    | Binders:              | 60 |
| Antigorite:         |    |                       |    |

COMMENTS:

It is certified by the signatures below that the laboratory identified is accredited by the National Institute of Standards and Technology for Polarized Light Microscopy (PLM) analysis under the EPA Interim Asbestos Bulk Sample Quality Assurance Program, Laboratory 102082-0.

Microanalyst:

**Non-Responsive**

All percentages given are by volume visually estimated. All analyses are performed in accordance with the EPA "Method for the Determination of Asbestos in Bulk Building Materials, EPA/600/R-93/116, July 1993." This report must not be reproduced except in full with the approval of Analytical Environmental Services, Inc. These test results apply only to the samples actually tested. The refractive index was determined by using "Rapidly and Accurately Determining Refractive Indices of Asbestos Fibers by Using Dispersion Staining Method" by Shu-Chun Su, Ph.D.



Woodland, NC  
Armory







## Drill Hall

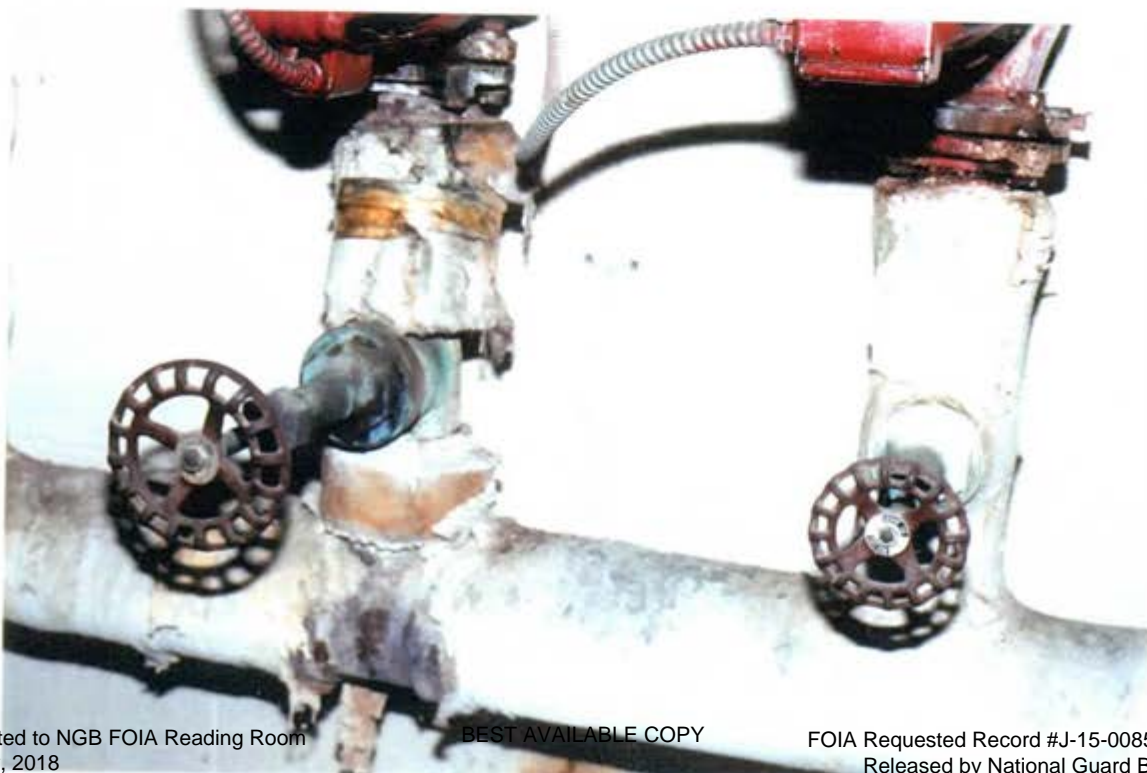


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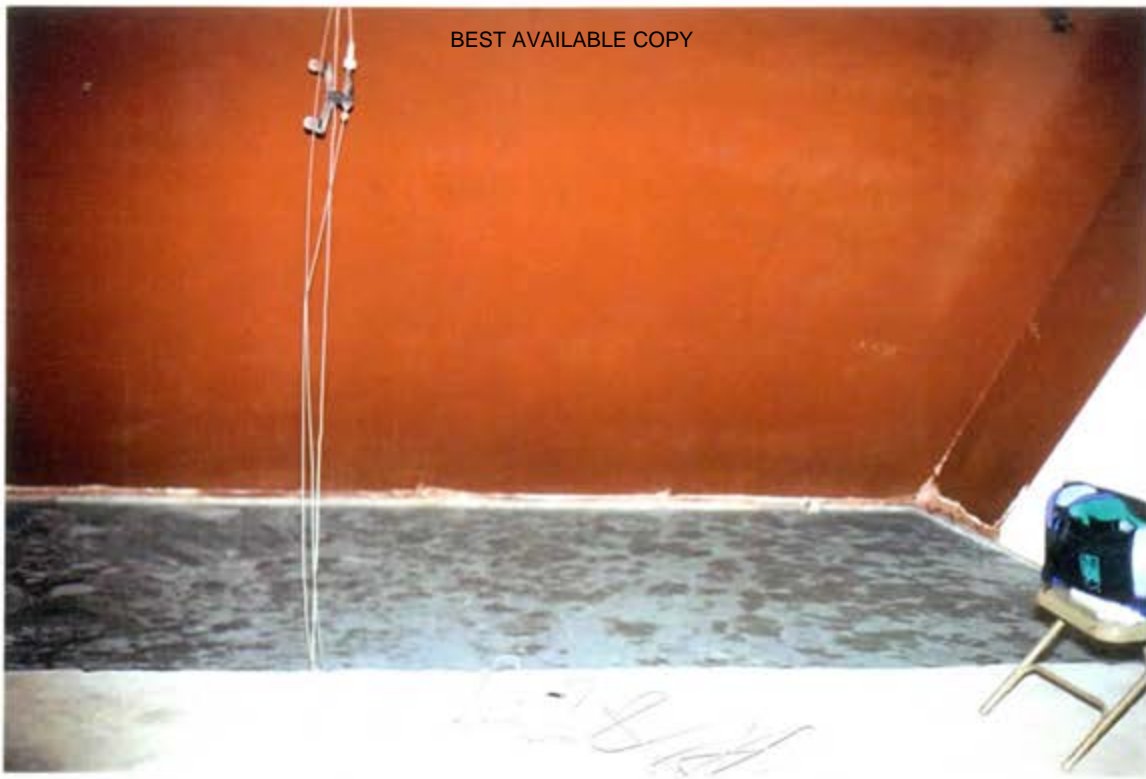


**Boiler**

**Broken Wrapping  
Boiler Room**



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**IFR Front View**

**IFR Rear View**







**Water Flooding The  
Floor in Front of  
Bullet Backstop**





**Classroom 2  
Broken Floor Tiles**

**Weight Room Broken &  
Missing Floor Tiles**







**882nd Office  
Broken Floor Tiles**

**878th Office  
Missing Floor**





**A/C Window Unit  
Office**

**Ice Machine Stored in  
Utility Room**





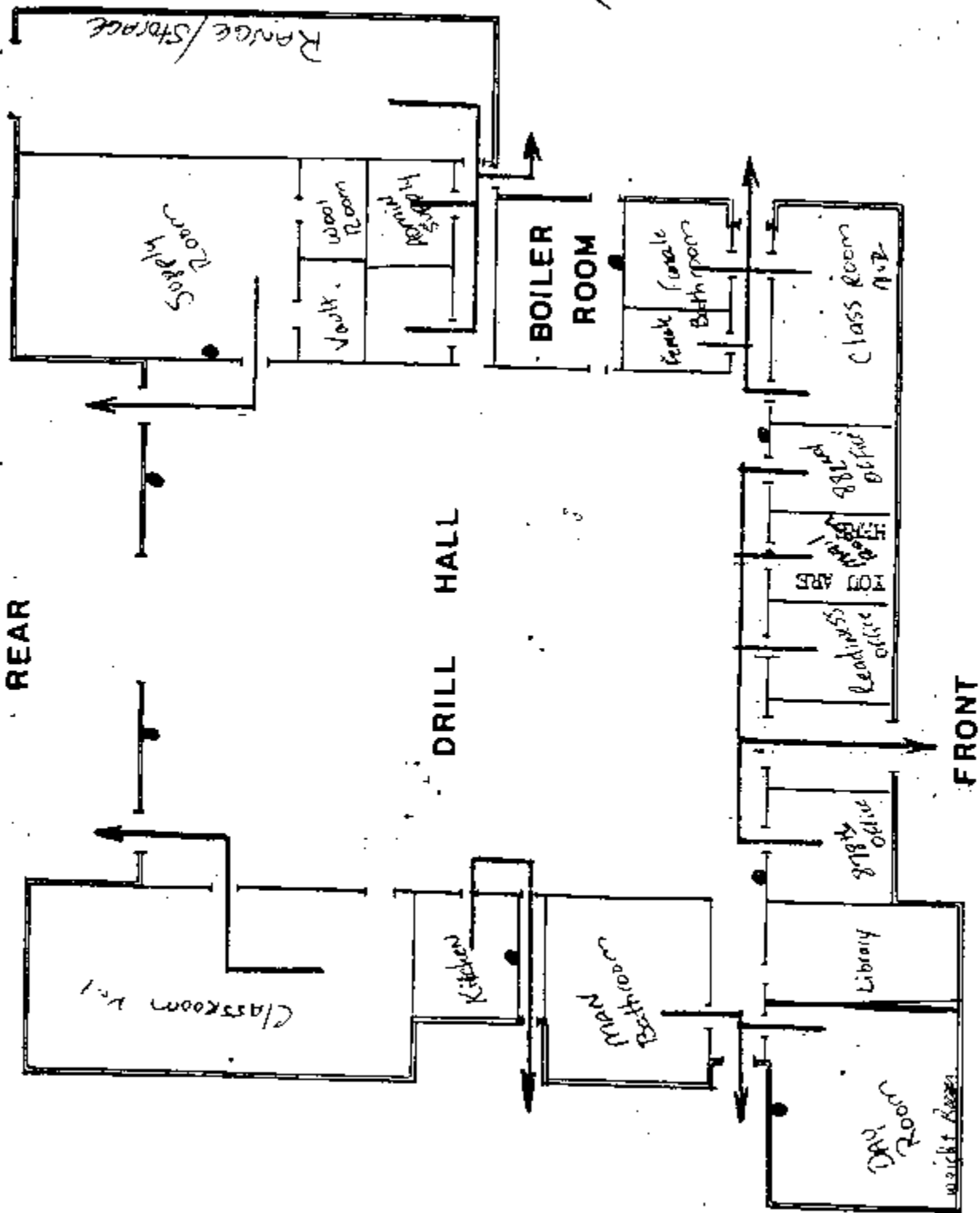


## Motor Pool

## MSDS Book, Inside the Oil House



Woodland NC 28389



# FIRE EVACUATION PLAN

IN CASE OF FIRE DIAL DAY: 587-2391 or 587-5711  
 night: 587-2251 or 587-2081