

Safety

Policy and Responsibilities for Inspection, Evaluation and Operation of
Army National Guard Indoor Firing Ranges

By Order of the Secretaries of the Army and the Air Force:

H STEVEN BLUM
Lieutenant General, USA
Chief, National Guard Bureau

Official:

GEORGE R. BROCK
Chief, Plans and Policy Division

History. This printing publishes a revision of NGR 385-15.

Summary. This regulation prescribes policy and responsibilities for inspection, evaluation and operation of Army National Guard (ARNG) indoor firing ranges and has been extensively revised. 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.

Applicability. This guidance applies to all persons responsible for the operation of ARNG indoor firing ranges.

Proponent and exception authority. The proponent of this regulation is Chief, NGB-AVS-S. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation.

Management control process. This regulation is subject to the requirements of Army Regulation (AR) 11-2 and identifies key management controls that must be evaluated.

Supplementation. States are authorized to supplement contents of this regulation, except statutory and Department of Defense (DOD) directed requirements. Supplements will not be less stringent than regulatory requirements contained here within. If supplements are issued, States will furnish copies to NGB-AVS-S.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to NGB-AVS-S (NGR 385-15), ARNG Readiness Center, 111 South George Mason Drive, Arlington, VA 22204-1382.

Distribution: A

Table of Contents

Chapter 1
General Provisions

Section I

Introduction

1-1. Purpose

- 1-2. References
- 1-3. Explanation of abbreviations and terms
- 1-4. Policy

Section II

Responsibilities

- 1-5. Director, Army National Guard (DARNG)
- 1-6. Chief, Aviation and Safety Division (NGB-AVS)
- 1-7. Chief, Safety and Aviation Standardizations Branch (NGB-AVS-S)
- 1-8. Chief, Training Division (NGB-ART)
- 1-9. Chief, Installations Division (NGB-ARI)
- 1-10. Chief, Office of the Chief Surgeon (NGB-ARS)
- 1-11. Chief, Environmental Programs Division (NGB-ARE)
- 1-12. NGB Regional Industrial Hygienists
- 1-13. The State Adjutant General
- 1-14. State Construction and Facilities Management Officer (CFMO)
- 1-15. State Safety and Occupational Health Manager (SOHM)
- 1-16. State Surgeon Office
- 1-17. State Environmental Office
- 1-18. Readiness Center/Facility Commanders
- 1-19. IFR Range Control Officer (RCO)
- 1-20. Commanders and Supervisors
- 1-21. IFR Officer In-Charge or Non-Commissioned Officer In-Charge (OIC/NCOIC)
- 1-22. Range Safety Officer (RSO)

Chapter 2

Procedures, Classification and Use

- 2-1. Procedures, Classification and Use
- 2-2. Classification of Ranges
- 2-3. Range Use
- 2-4. Prohibitions

Chapter 3

Personal Protective Equipment

- 3-1. Personal Protective Equipment (PPE)
- 3-2. Posting Warning Signs
- 3-3. Range Standing Operating Procedures (SOP)

Chapter 4

Indoor Firing Range Inspections

- 4-1. Inspection Requirements
- 4-2. Initial Inspections
- 4-3. Safety Requirements
- 4-4. Ventilation Requirements
- 4-5. Air Sampling Requirements
- 4-6. Inspection Reports
- 4-7. Records Maintenance

Chapter 5

Range Operation and Control of Potential Lead Poisoning

- 5-1. Control of Potential Lead Poisoning [Occupational Safety & Health Administration (OSHA) Lead Standard]
- 5-2. Alternative Ammunition

- 5-3. Maintenance Requirements
- 5-4. Housekeeping
- 5-5. Maximum Exposure Hours
- 5-6. Extent of Use

Appendices

- A. References
- B. Example of Indoor Firing Range SOP
- C. Indoor Firing Range Visitor and Limited Use Log
- D. Permission and Release of Liability Certificate
- E. Indoor Firing Range Accident Response Plan
- F. Indoor Firing Range Inspection Checklist
- G. Management Control Evaluation Checklist

Table List

- 1-1. Lead Exposure Limits
- 2-1. Non-powered makeup air system
- 2-2. Powered makeup air system

Figure List

- 2-1. Indoor Firing Range Evaluation

Glossary

Page intentionally blank

Chapter 1 General Provisions

Section I Introduction

1-1. Purpose

This regulation prescribes Army National Guard (ARNG) policy and responsibilities for inspection, evaluation and operation of ARNG indoor firing ranges. It applies to all training, maintenance, and firing activities conducted on indoor firing ranges (IFRs). This regulation does not cover operations or safety in shoot houses. This regulation supplements AR 385-10, AR 385-63, and AR 385-64. Additionally, this regulation prescribes the procedural requirements for IFR rehabilitation and conversion which are contained in NG Pam 420-15.

1-2. References

Required and related publications and referenced and prescribed forms are listed in Appendix A.

1-3. Explanation of abbreviations and terms

Abbreviations and terms used in this regulation are explained in the Glossary.

1-4. Policy

- a. Ammunition shall be Army classified for IFRs to be utilized for live fire training.
- b. Detailed initial and periodic inspections of all IFRs shall be conducted as prescribed to ensure compliance with current safety and health standards.
- c. ARNG or civilian personnel shall not use any IFR, which has been classified as *unsafe*.
- d. A Department of the Army (DA) Form 4753 (Notice of Unsafe or Unhealthy Working Condition) shall be posted on the entrance to all ranges classified as *unsafe*.
- e. Ranges classified as *unsafe* shall be secured, sufficiently to preclude entry.
- f. New ranges shall be designed using the latest standards provided by NGB-ARI.
- g. The use of IFRs for purposes other than small arms weapons training and target practice is strictly *prohibited*.

Section II Responsibilities

1-5. Director, Army National Guard (DARNG)

The Director, Army National Guard establishes policy and provides resources necessary to implement the ARNG Range Safety Program per AR 385-63 and DA Pam 385-63. Since there is some variation within NGB in the way staff implement and communicate policies associated with IFRs due to their complex nature, funding issues should be coordinated with NGB-AVS, NGB-ART, NGB-ARI, and NGB-ARE,. This will assist in proper usage of funds and performance in implementing and delivering consistent guidance on these issues.

1-6. Chief, Aviation and Safety Division (NGB-AVS)

The Chief, NGB-AVS, has staff responsibility for supervising the ARNG Range Safety Program and to:

- a. Identify the resources necessary to effect policy and standards throughout the ARNG in accordance with (IAW) AR 385-63 and DA Pam 385-63.
- b. Coordinate with other Headquarters, Department of the Army (HQDA) staff agencies and appropriate State staff on matters pertaining to the ARNG Range Safety Program.

1-7. Chief, Safety and Aviation Standardizations Branch (NGB-AVS-S)

The Chief, NGB-AVS-S shall --

- a. Develop, implement, and manage the ARNG Range Safety Program.
- b. Ensure that the design of all ranges to be constructed or remodeled are reviewed for compliance with safety and occupational health standards and make recommendations to appropriate approval authority.
- c. Determine and publish the training requirements for the persons who will conduct physical safety inspections of the range, which will include certification to perform inspections, evaluations, and determinations of

IFRs IAW with OSHA standards and other nationally accepted standards for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.

1-8. Chief, Training Division (NGB-ART)

The Chief, NGB-ART shall provide weapons training strategies consistent with AR 350-38 and the Standards and Training Commission.

1-9. Chief, Installations Division (NGB-ARI)

The Chief, NGB-ARI shall --

- a. Authorize Federal funding of sustainment and/or conversion of IFRs in accordance with NGR 5-1.
- b. Provide the design standards for the construction of IFRs.
- c. Review designs of new and remodeled IFRs for adherence to required performance standards, with accompanying simultaneous review by the Safety and Aviation Standardizations Branch and Office of the Surgeon.

1-10. Chief, Office of the Chief Surgeon (NGB-ARS)

The Chief, NGB-ARS shall --

- a. Serve as an advisor to The Adjutants General on the ARNG Occupational Health and Industrial Hygiene Program.
- b. Ensure that IFR medical surveillance is performed IAW 29 CFR 1910.1025 and Department of Defense (DOD) 6055.5-M.
- c. Ensure that active IFRs are properly evaluated and IFR classifications are based upon ventilation measurements and air monitoring results IAW Federal regulations and standards.

1-11. Chief, Environmental Programs Division (NGB-ARE)

The Chief, NGB-ARE shall --

- a. Implement policy and guidance related to disposal of containerized hazardous lead-contaminated dust, sand, and debris resulting from clean-up and remediation efforts from IFRs.
- b. Review projects for disposal of containerized hazardous lead-contaminated dust, sand, and debris resulting from clean-up and remediation efforts from IFRs.

1-12. NGB Regional Industrial Hygienists

NGB Regional Industrial Hygienists shall --

- a. Be certified to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs.
- b. Conduct inspections to ensure that exposure monitoring and ventilation measurements are conducted in IFRs initially, every 2 years, or 480 hours of operation, whichever comes first.
- c. Conduct inspections to ensure that workers' exposure data is maintained on DA Form 4700 (Medical Record-Supplemental Medical Data) IAW AR 40-66, paragraph 3-2a, and DOD 6055.5-M for 40 years or the duration of employment plus 20 years, whichever is longer, IAW 29 CFR 1910.1025(n)(1) & (2).
- d. Makes final classification recommendation to the SOHM on whether the range is *safe*, *limited use* or *unsafe* based on ventilation measurements and air sampling.
- e. Review in a timely manner the preliminary design of all new, restoration and modernization projects dealing with IFRs to ensure current safety and occupational health related compliance requirements are met.

1-13. The State Adjutant General

The State Adjutant General shall --

- a. Establish, supervise, and direct a safety and occupational health program for users of IFRs.
- b. Make final classification on whether IFRs are *safe*, *limited use* or *unsafe* based on safety hazards, ventilation measurements and air sampling. Ensure that all ranges being used are classified as *safe* or *limited use*, those ranges classified as *limited use* under the criteria of this regulation are used on a limited basis, and all ranges classified as *unsafe* under the criteria of this regulation are not used.
- c. Determine and identify funding requirements to ensure development of a comprehensive safety and occupational health program for the users of IFRs.

d. Ensure that facilities with active, inactive or converted IFRs establish a Lead Hazard Management Program to prevent lead exposure to children six years and under, pregnant women and workers in accordance with all applicable Federal and State laws and regulations.

e. Ensure that all inspections, evaluations, and determinations of IFRs will be completed by trained personnel certified IAW with OSHA and other nationally accepted standards for use, maintenance, cleaning, or conversion of IFRs.

1-14. State Construction and Facilities Management Officer (CFMO)

The CFMO shall –

a. Be the only individual within the State who has the authority to classify work, which is the final step before project approval and the commencement of the activities of maintenance, repair, or construction. Recommends approval and oversees all projects, regardless of funding source or project initiator, including troop construction projects.

b. Coordinate the approval of State sustainment, restoration and modernization projects, including self-help, to be executed by the Construction and Facilities Management Office, troop units, and other State ARNG activities and tenants (including private sector entities) to ensure technical sufficiency and compliance with statutes, regulations, and the State's Real Property Development Plan; and is the sole source of work classification for all work accomplished on all State facilities.

c. Certify and process NGB Forms 420-R or DD Forms 1390/1391 (FY __ Military Construction Program/FY __ Military Construction Project Data) for sustainment, restoration, and modernization projects based upon the dollar thresholds in NGR 420-10.

d. Ensure that any restoration or modernization projects dealing with IFRs are first reviewed by the Joint Service Reserve Component Facility Board and that designs are reviewed by the Regional Industrial Hygienist prior to proceeding beyond preliminary design to ensure current safety and occupational health related compliance requirements are met.

e. Include performance and testing specifications in the contract documents for the construction and modification of all IFRs.

f. Before accepting the completed project require the contractor to demonstrate through testing that the range meets the various airflow requirements of this regulation.

g. Control all cleanup efforts and ensure that they are conducted according to current industry standards and NG Pam 420-15.

1-15. State Safety and Occupational Health Manager (SOHM)

The SOHM shall --

a. Perform or coordinate performance of all inspections and evaluations of IFRs.

b. Determine whether the range is *safe*, *limited use* or *unsafe* based on the physical safety inspection.

c. Review and approve all IFR Standing Operating Procedures (SOP) to ensure that all requirements are met. An example SOP can be found at Appendix B of this regulation.

d. Ensure that the design of all ranges to be constructed or remodeled is reviewed for compliance with safety and occupational health standards and that recommendations are made to appropriate approval authority.

e. Make recommendations to the Adjutant General regarding the disposition of "*unsafe*" and "*limited use*" ranges.

f. Approve the use of the range by non-military organizations.

g. Maintain copies of all range inspections, ventilation measurements and visitor's log.

h. Provide training on safe use and requirements to the Range Safety Officer (RSO).

i. Ensure that training programs identify the hazards and preventive measures for all personnel with a potential for exposure to lead are instituted.

j. Coordinate with Joint Forces Headquarters staff as required.

k. Ensure that exposure monitoring and ventilation measurements in IFRs initially completed, then every 2 years, or after 480 hours of operation, whichever comes first.

l. Ensure that an initial evaluation of new IFRs has been conducted, and that each active range is reevaluated every two years or every 480 hours of operation, whichever comes first. An IFR will be reevaluated, prior to use, if modifications to the range structure or ventilation system are made. *Approval from the State Safety Office and Regional Industrial Hygienist must be obtained before the range is returned to service.*

1-16. State Surgeon Office

The State Surgeon Office shall –

- a. Institute a medical surveillance program for individuals who are or may be exposed to lead above the action level for more than 30 days per year IAW 29 Code of Federal Regulations (CFR) 1910.1025(j)(1)(i) and DOD 6055.5-M.
- b. Ensure that military and civilian personnel exposure monitoring (air sampling results) and medical surveillance records are maintained in accordance with 29 CFR 1910.1025 (n)(1) & (2) and AR 40-66 requirements.

1-17. State Environmental Office

The State Environmental Office shall coordinate disposal of all hazardous waste generated from range operation, cleaning, and maintenance.

1-18. Readiness Center/Facility Commanders

Commanders of facilities with IFRs shall maintain and be familiar with AR 385-63 and DA Pam 385-63, and the provisions of this regulation, to ensure that --

- a. A Safety Compliance Program is developed for IFRs.
- b. Indoor firing ranges are secured when not in use.
- c. A Range Control Officer (RCO) is appointed for all IFRs under his/her area of command and that all RCOs have been properly instructed and are competent in the performance of their duties as outlined in this regulation and DA Pam 385-63.
- d. The RCO of the IFRs maintain the visitors log and follow procedures IAW paragraph 1-19 of this regulation.
- e. All non-military organizations using IFRs under their area of command have signed a contract/agreement delineating the conditions of range use and liability. The contract/agreement should also include provisions for hazardous waste disposal expenses.
- f. A SOP for each range is established, enforced and approved by the SOHM.
- g. All required signs are posted IAW Section 3-2 of this regulation.
- h. All individuals using IFRs under the facility commander's area of command have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and that these individuals have signed an agreement to follow the rules stated therein. See paragraph 5-3 for record maintenance requirements.
- i. RCOs are enrolled in respiratory protection and medical surveillance programs as required by AR 11-34, 29 CFR 1910.1025 and 29 CFR 1910.134.
- j. RCOs have documentation to show that they have been educated about the health effects of exposure to lead dust IAW 29 CFR 1910.1200 and 29 CFR 1910.1025. This is an annual requirement IAW this standard.
- k. No equipment, carpet or mat covered in porous materiel, or furniture, such as tables, chairs or storage cabinets, is stored or maintained in the range.
- l. All RSOs and maintenance personnel have a copy of this regulation, AR 385-63, and the range SOP and are familiar with and in compliance with all IFR policies and procedures.
- m. The range ventilation system is checked and air sampling is performed every 480 hours of operation, after changes or additions have been made to the range, or every two years, whichever comes first.
- n. Personnel do not fire ammunition in excess of the allowable time as dictated by established exposure limits. (See Table 1-1).
- o. Exposure records shall be maintained IAW paragraph 5-5 when personnel are exposed to airborne lead concentrations.
- p. lead fragments are not removed from the bullet trap or surrounding areas except as coordinated through the State Environmental Office.
- q. The use of M16 rifles using 5.56 mm ammunition in the IFR is *prohibited*, except on ranges where the bullet trap is rated for 5.56 mm ammunition. Otherwise, the M16 shall be used with .22 caliber adapter and ammunition.
- r. The ventilation system is in operation at all times during firing or cleaning.
- s. If a range is to be converted to another use, refer to NG Pam 420-15 and contact the SOHM.

Table 1-1 Lead Exposure Limits. Breathing Zone Exposure Limits for Intermittent Atmospheric Lead Exposures			
Concentrations (in mg/m³)	Maximum Hours of Allowable Exposure Per Day For:		
	A. Guardsmen exposed less than 30 days per year	B. Guardsmen on marksmanship teams or Guardsmen exposed more than 30 days per year and all non-military personnel	C. *Range Users under 17 years of age or younger
0.000 - 0.029	8	8	4
0.030 - 0.039	8	6	3
0.040 - 0.049	8	4.5	2
	Limited Use Ranges	Limited Use Ranges	Limited Use Ranges
0.050 - 0.059	6	4	2
0.060 - 0.079	5	3	1
0.080 - 0.099	4	2.25	1
0.100 - 0.149	2.5	1.5	0
0.150 - 0.199	2	1	0
0.200 - 0.299	1.25	0.75	0
0.300 - 0.399	1	0.5	0
0.400 - 0.499	0.75	0.5	0
0.500 - 0.749	0.5	0.25	0
0.750 - 0.999	0.25	0.25	0
1.000 or above	0	0	0
<ul style="list-style-type: none"> • <u>These values are the actual concentrations measured over the sampling period and are not 8-hour time-weighted averages.</u> • Adherence to these guidelines shall prevent overexposure to lead in indoor firing ranges. 			

* Recommend an Occupational Health Physician make the determination on length of firing time for individuals 17 years of age and younger.

1-19. IFR Range Control Officers (RCO)

RCO shall --

- a. Be properly instructed and are competent in performance of their duties as outlined in this regulation and DA Pam 385-63.
- b. Ensure that all individuals using the IFR understand the range safety regulations, rules, and SOP.
- c. Ensure that all cleaning procedures are performed IAW the requirements of this regulation and the procedures prescribed in NG Pam 420-15. This includes documentation of dates, names of personnel and time on the range for all cleaning procedures. See paragraph 5-3 for record maintenance requirements.
- d. Maintains and updates files of current and historical usage of IFR.
- e. Maintain the visitor log IAW the range SOP. As a minimum the log should include the names of the shooters, the amount of time spent in the range by each individual, the date of firing, the type(s) of ammunition fired, and the number of rounds fired. Appendix C contains the recommended format to the visitation log.
- f. Forward a copy of the visitor log to the SOHM on a quarterly basis.
- g. Obtain a permission and release of liability certificate prior to any organization or person before being allowed to use the IFR. Sample permission and release of liability certificate see Appendix D.

1-20. Commanders and Supervisors

Commanders and Supervisors shall --

- a. Enforce all range safety and occupational health procedures.

- b. Maintain a record of time spent on the range for all personnel using "*limited use*" firing ranges as recorded by the RCO.
- c. Provide the State Occupational Health Program Manager with a list of personnel firing in ranges classified as "*limited use*" ranges for more than the prescribed times listed in Table 1-1. See paragraph 5-3 for record maintenance requirements.
- d. Establish weapons clearing procedures.
- e. Designate Officer In-Charge or Non-Commissioned Officer In-Charge (OIC/NCOIC) and RSOs in writing for each firing exercise.
- f. Individuals that are appointed as the OIC/NCOIC or RSO are qualified to perform their assigned duties as outlined below and IAW DA Pam 385-63.
- g. Provide the State Occupational Health Program Manager with a list of IFR RCOs and RSOs.
- h. Ensure all IFR RCOs and RSOs are enrolled in the Medical Surveillance and Respiratory Protection Programs, IAW DOD 6055.5-M.
- i. Ensure that the RSO is: competent and properly instructed in the performance of their duties; knowledgeable in the weapon system for which they are held responsible and in safe ammunition handling and use procedures; and certified by the established State Safety Office safety certification program in accordance with DA Pam 385-63. All training will be documented.
- j. Ensure that a training program that identifies the hazards and preventive measures for all personnel with a potential for exposure to lead is instituted.

1-21. IFR Officer In-Charge or Non-Commissioned Officer In-Charge (OIC/NCOIC)

IFR OIC/NCOIC shall be designated by the commander or supervisor of all using units or groups in the grade of E-6 or above to be the responsible for the safe conduct of firing and proper use of the facilities. The duties of the range OIC/NCOIC shall include but are not limited to the following:

- a. Receives a thorough briefing from the RCO, and conduct an inspection of the range with the RCO, or his/her designated representative. If the condition of the range is acceptable, assume control and request clearance from the RCO to fire.
- b. Ensures the overall safe conduct of training and the proper use of the facility.
- c. Ensures that all participants are familiar with the verbal commands, hand signals, weapons clearing procedures, range procedures and safety requirements.
- d. Be present when the range is in use and determine when it is safe to fire.
- e. Be familiar with the Accident Prevention Plan and have a current copy on hand prior to commencement of firing. Sample IFR Accident Prevention Plan is located at Appendix E.
- f. Ensures that at least three individuals are present on the range when the range is in use.
- g. Ensures that all individuals using the range have signed-in on the roster maintained by the Readiness Center/facility Commander.
- h. Ensures that the range has a working telephone, or that other means of emergency communication is available.
- i. Ensures that appropriate emergency medical personnel have been notified and that medical support is available.
- j. Implements risk management in all phases of the training events. A completed risk assessment will be submitted prior to authorization to the RCO before the range is to be used.
- k. Ensures that all weapons and ammo used on the ranges are authorized by the RCO.
- l. Ensures that all weapons must be safety checked before firing.
- m. Ensures that the RSO is physically present at the IFR training event.
- n. Ensures that weapons malfunctions/jams are cleared only at the direction of the RSO in accordance with the procedures established in the operators' manual for the weapon.
- o. Ensures that all ammunition malfunctions are reported to RCO IAW AR 75-1.
- p. Stops all training in the event of a serious accident or injury. Ensures that all accidents are investigated and reported IAW AR 385-40.
- q. Ensures that weapons may only be fired from designated firing positions.
- r. Ensures that firers confine their firing to targets in their lane.
- s. Ensures that the required hearing and eye protection is available and used.
- t. Ensures that all bullet casings are removed from in front of and behind the firing line and that the range is restored to a serviceable condition. *Dry sweeping of the range is prohibited.*

u. Conducts a final inspection of the range. Secures the range, and turns the keys and shooters' logs into the RCO or his/her designated representative.

1-22. Range Safety Officer (RSO)

The RSO shall be designated by the commander or supervisor of all using units or groups in the grade of E-5 or above to be the responsible for the safe conduct of firing and proper use of the facilities. RSO will have no other duties during that period of training. The duties of the RSO shall include but are not limited to the following:

- a. Receives training and a thorough briefing from the RCO, and conducts an inspection of the range with the RCO, or his/her designated representative.
- b. Be knowledgeable of the weapons to be used and ensures that only authorized weapons and ammunition are used. Ensures that the proper operators' manuals are available for each individual using the range.
- c. Is physically present during all phases of IFR training events.
- d. Ensures that all personnel wear the proper hearing and eye protection as required.
- e. Ensures that weapons and personnel are properly positioned.
- f. Ensures that personnel do not leave the firing line without the permission of the RSO.
- g. Ensures that the muzzle of each weapon is pointed downrange at all times. Personnel may holster their handguns after being cleared by the RSO to do so.
- h. Ensures the following: When not in use, revolvers shall have cylinders open and automatic weapons shall have magazines removed and the slide/receiver locked to the rear. Rifles shall also have the magazine removed, if applicable, bolts and/or slides open or locked to the rear when not in use. Weapons shall be carried to and from the firing line in the configuration described above, with the muzzle pointed downrange.
- i. Ensures that weapons malfunctions/jams are cleared only at the direction of the RSO in accordance with the procedures established in the operators' manual for the weapon.
- j. Reports all accidents to the OIC/NCOIC.
- k. Ensures that weapons are cleared and checked during temporary suspension of firing.
- l. Ensures that firing is stopped promptly when an unsafe act is observed or reported.
- m. Does not permit persons to walk in front of the firing line during firing. Lanes with inoperable target retrieval systems shall not be used.
- n. Limits firing time, if applicable. This limitation shall be based on air-sampling results for individuals using the range and ventilation measurements. Contacts the SOHM to determine if the range has time limitations placed upon it.
- o. Ensures that the approved risk management plan is followed and not deviated from.
- p. Stops all firing in the event of a serious accident or injury.
- q. Ensures that all weapons are cleared prior to being removed from the firing line.
- r. Ensures that all individuals on the range thoroughly wash their hands and face immediately after leaving the range.

**Chapter 2
Procedures, Classification and Use**

2-1. Procedures, Classification and Use

Indoor firing ranges have been built in readiness centers for many years. Each range design reflects the emphasis and technology on protecting the health and safety of the shooter that was current at the time of design and construction. Older ranges may not meet the current standards deemed necessary to accomplish this. However, under controlled conditions, many older ranges will not expose users to hazardous conditions. See Figure 2-1.

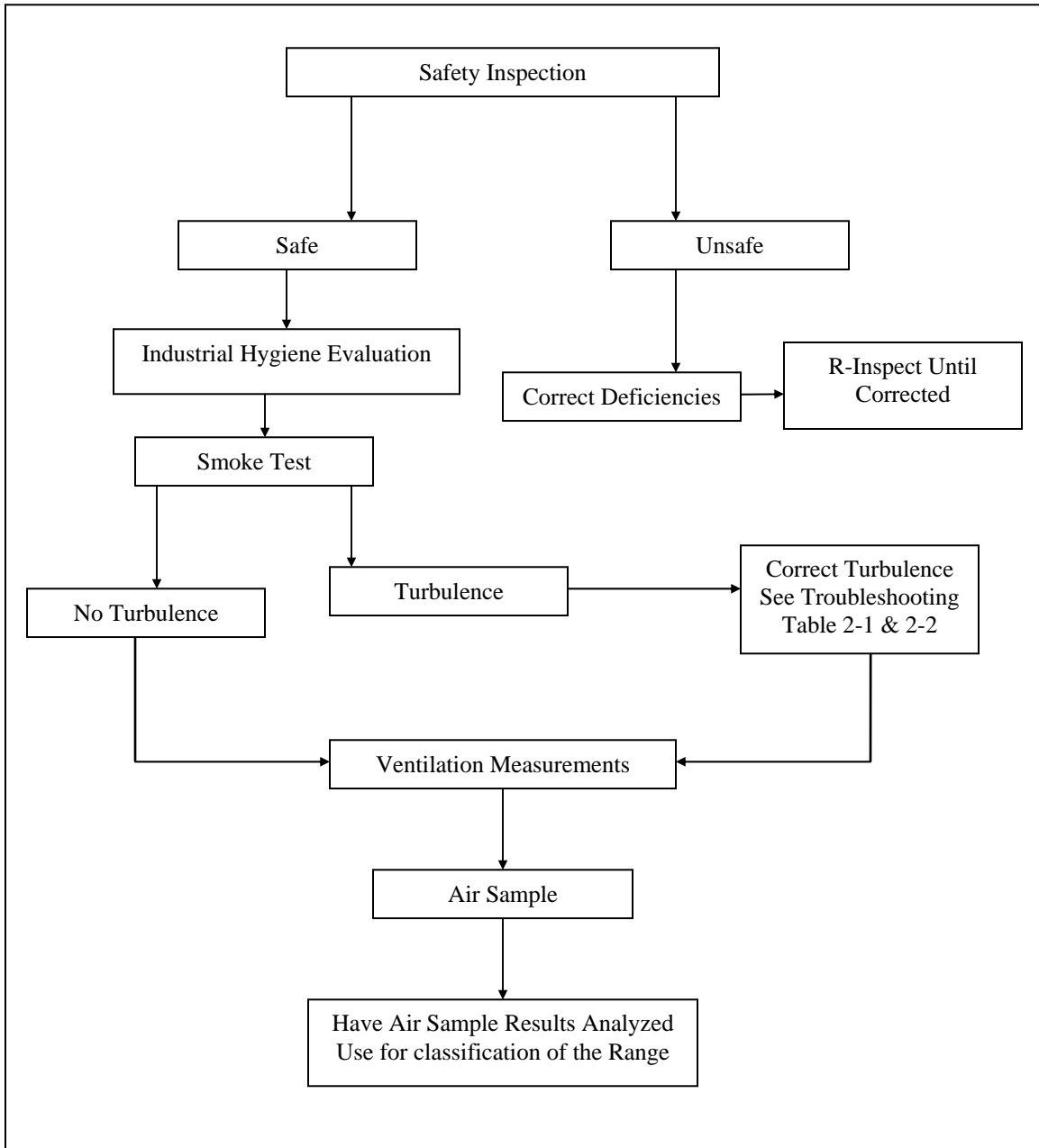


Figure 2-1. Indoor Firing Range Evaluation

Table 2-1
Non-powered makeup air system

	Observed Condition	Possible Causes	Corrective Action
1.	Low average velocity at firing line and neutral or slightly negative pressure differential	Exhaust fan speed rotations per minute (rpm) is set too low, fan is not designed to provide sufficient airflow cubic feet per minute (cfm), or fan is not operating properly (i.e., fan belt loose/slipping/worn, fan wired/installed backwards, etc.).	Increase the exhaust fan speed (rpm), replace fan with one capable of providing 50 feet per minute (fpm) average velocity at the firing line, or correct operating problems (i.e., replace fan belt, install/wire fan correctly).
2.	Low average velocity at firing line and negative pressure differentials greater than -0.1 inches wg.	Exhaust fan speed (rpm) set too low, fan is not designed to provide sufficient flow (cfm), or fan is not operating properly and one or more of the following: (1) plenum wall has insufficient open area, (2) makeup air damper has insufficient effective (open) area, or (3) makeup air damper not opening correctly.	Increase the exhaust fan speed (rpm), replace exhaust fan with one capable of providing 50 fpm average velocity at the firing line, or correct any operating problems and (1) increase open area of plenum wall (increase # or size of holes), (2) replace damper with one that has larger effective (open) area, or (3) repair damper.
3.	High average velocity at firing line and high negative pressure differential	Exhaust fan speed is set too high. Exhaust fan is designed to provide more air volume (cfm) than required to obtain 50 fpm at the firing line. The makeup air damper or plenum wall may have insufficient open area.	Lower the exhaust fan speed (rpm). Replace the fan with one capable of providing 50 fpm average velocity at the firing line. Increase the open area of the plenum wall or makeup air damper as necessary.
4.	High average velocity at firing line and neutral or slight negative pressure differential	Makeup air damper or plenum wall has too much open area and either: (1) exhaust fan speed is set too high, or (2) exhaust fan is designed to provide more air volume (cfm) than required to obtain 50 fpm at the firing line.	Replace the makeup air damper or plenum wall with one that has less open area and: (1) lower the rpm of the existing exhaust fan, or (2) replace the fan with one that provides an average velocity of 50 fpm at the firing line.

**Table 2-1
Non-powered makeup air system (Continued)**

	Observed Condition	Possible Causes	Corrective Action
5.	Turbulence at firing line	<p>Air velocity through plenum wall is too high.</p> <p>Holes in plenum wall are different sizes or are not uniform</p> <p>Plenum does not extend full height and width of range</p> <p>Makeup air is not distributed into plenum uniformly (makeup air dampers on the side of the plenum are known to create this problem).</p> <p>Abrupt changes in ceiling height or wall configuration at or near the firing line.</p>	<p>Reduce air velocity through the plenum wall to 400-600 fpm by enlarging the holes to approximately 1-inch diameter.</p> <p>Make holes in plenum wall uniform and approximately 1-inch diameter.</p> <p>Extend perforated plenum wall the full height and width of the range.</p> <p>Add baffles or filters to provide uniform entry of makeup air into the plenum</p> <p>Provide a smooth transition in ceiling height or wall configuration.</p>

Ventilation Troubleshooting Table
Information in this Table was Provided by USACHPPM

**Table 2-2
Powered makeup air system**

	Observed Condition	Possible Causes	Corrective Action
1.	Low average velocity at firing line and neutral or slight negative pressure differential	<p>Exhaust and makeup air fans speed (rpm) is set too low. Exhaust and makeup air fans are not designed to provide sufficient airflow (cfm).</p> <p>Fans are not operating properly (i.e., fan belt loose/slipping/worn, fan wired/installed backwards, etc.).</p>	<p>Increase the speed (rpm) of the fans.</p> <p>Replace existing exhaust fan and makeup air unit with ones capable of providing 50 fpm average velocity at the firing line and 10 percent more exhaust than makeup air.</p> <p>Correct operating problems (i.e., replace fan belt, install/wire fan correctly).</p>
2.	Low average velocity at firing line and negative pressure differential greater than -0.1 inches water gage (wg).	<p>Makeup air fan not designed to provide sufficient flow (cfm), operating at low speed (rpm), or not operating properly.</p> <p>Plenum wall may have insufficient open area also.</p>	<p>Replace makeup air fan with one capable of providing 50 fpm average velocity at the firing line, increase the speed (rpm) of the existing makeup air fan , or correct any operating problems.</p> <p>Increase the open area of the plenum wall to provide 400-600 fpm average velocity through the holes.</p>

Table 2-2**Powered makeup air system (Continued)**

3.	Low average velocity at firing line and positive pressure differential (i.e., +0.1 inches wg.)	Exhaust undersized, set at too low a speed (rpm), or not operating properly and makeup air fan undersized or set at low speed (rpm). Makeup air volume exceeds exhaust air volume. Electrical interlock not in place or not functioning and makeup air unit undersized, set at a low speed or not operating properly.	Increase speed, repair, or replace makeup air fan to provide 50 fpm average velocity at the firing line and increase speed or replace exhaust fan to provide 10 percent more exhaust air than makeup air. Repair or install electrical interlock such that the exhaust fan starts prior to makeup air fan and repair/replace makeup air fan.
4.	Correct average velocity at firing line and high negative pressure differential	Plenum wall has insufficient open area.	Increase open area of plenum wall (increase # or size of holes).
5.	Correct average velocity at firing line and neutral pressure differential	Plenum wall has too much open area.	Decrease open area of plenum wall (decrease # or size of holes).
6.	High average velocity at firing line and positive pressure differential	Makeup air fan speed is set too high or fan oversized. Electrical interlock not in place or not functioning and makeup air fan running at too high a speed (rpm) or oversized.	Lower the makeup air fan speed (rpm) or replace the fan to provide 50 fpm average velocity at the firing line. Repair or install electrical interlock such that exhaust fan starts prior to makeup air fan and alter rpm/replace makeup air fan.
7.	Correct average velocity at firing line and positive pressure differential	Exhaust fan undersized, set at a low speed (rpm), or not operating properly (i.e., worn or broken belt, installed backwards, etc.). Electrical interlock not in place or not functioning.	Alter rpm or replace exhaust fan to provide 10 percent more exhaust air than makeup air. Repair or install electrical interlock such that exhaust fan starts prior to makeup air fan.

Table 2-2
Powered makeup air system (Continued)

8.	Turbulence at firing line	<p>Air velocity through plenum wall is too high.</p> <p>Holes in plenum wall are different sizes or are not uniform.</p> <p>Plenum does not extend full height and width of range.</p> <p>Makeup air is not distributed into plenum uniformly (i.e., supply diffusers directed right at plenum wall).</p> <p>Abrupt changes in ceiling height or wall configuration at or near the firing line.</p> <p>Obstruction to airflow inside plenum, near plenum wall or firing line</p>	<p>Reduce air velocity through the plenum wall to 400-600 fpm by enlarging the holes to approximately 1-inch diameter.</p> <p>Make holes in plenum wall uniform and approximately 1-inch diameter.</p> <p>Extend perforated plenum wall the full height and width of the range.</p> <p>Modify direction of makeup air supply diffusers or add baffles or filters to provide uniform entry of makeup air into the plenum.</p> <p>Provide a smooth transition in ceiling height or wall configuration.</p> <p>Remove obstructions to airflow or baffle to reduce effect.</p>
----	---------------------------	--	--

Ventilation Troubleshooting Table
Information in this Table was Provided by USACHPPM

2-2. Classification of Ranges

Based on inspection data collected on the range inspection checklist (Appendix F), ranges shall be classified as *safe*, *limited use* or *unsafe*. *Safe* ranges permit authorized firing for military and civilian use. *Limited use* ranges permit use only under controlled conditions based on the personnel exposure limits for intermittent lead exposure. (Table 1-1). *Unsafe* ranges are not authorized for use under any conditions.

a. Building envelope. (Design standards may be found in National Guard Bureau Design Guide (DG) 415-1, 2-3.3.1 or CEHND 1110-1-18).

(1) *Safe* ranges.

(a) Each firing lane is at least 4 feet wide.

(b) Pipes, conduits, lights, lighting fixtures and other projecting surfaces are baffled or covered by a material that will protect these items and prevent ricochets.

(c) Baffles do not disrupt the uniform airflow in the range.

(d) In older ranges, sidewall windows in front of the firing line have been removed and the openings sealed flush to the wall with materials compatible with the adjacent walls. New ranges are not built with windows in front of the firing line.

(2) *Unsafe* ranges.

(a) All firing lanes are less than 4 feet wide. If any one firing lane is less than 4 feet wide, that lane shall not be used for firing.

(b) Pipes, conduits or walls are not sealed to prevent migration of lead dust to other areas of the range. (See Appendix B of NG Pam 420-15 for wipe sample procedures used to determine if lead dust is migrating from the range).

(c) There are open floor drains in the range.

(d) Carpet, drapes or other fiber like material is located in any part of the range. (Contact the State Environmental Offices for hazardous waste disposal procedures.)

(e) Doors or windows located downrange of the firing line.

(f) Range buildings do not meet the other requirements of *safe* ranges as prescribed in the checklist in Appendix F of this document.

b. Ventilation

- (1) *Safe* ranges.
 - (a) The range has an operational mechanical ventilation system.
 - (b) The average airflow at the firing line in each firing lane is at least 50 fpm.
 - (c) Air is exhausted at or behind the bullet trap.
 - (d) Supplied air is introduced into the range behind the shooters.
 - (e) The ventilation system is so constructed that air exhausted from the IFR does not enter into another part of the building or any other air supply system.
 - (f) The design performance of the exhaust fans exceeds the design performance of the make-up air fans by approximately 10 percent.
 - (g) Air is not re-circulated in the firing range unless equipped with monitoring equipment as specified in paragraph 4-4c of this regulation.
 - (h) The differential pressure, as measured from 6 inches inside the range entrance to 6 inches outside the range, is at least -.05 inches of wg but does not exceed -.20 inches of wg.
 - (i) A smoke test of the range shows that the airflow in the range is in plug flow and that there is no turbulence at the firing line.
 - (j) In passive make-up air systems, the supply air louvers and exhaust fan shall be electrically interlocked.
 - (k) In systems with active make-up air, the forced draft and induced draft fans shall be interlocked to one switch.
 - (l) The door to the outside must open out.
 - (m) Ensure that gaps greater than ½ inch around or below the entrance of a doorway to the range are sealed.
 - (n) Range air temperature should be between 65 degrees and 80 degrees Fahrenheit.
- (2) *Unsafe* ranges.
 - (a) The airflow at the firing line on any lane is less than 50 fpm at any level and air sampling results suggest possible overexposure as determined by a competent person.
 - (b) The range has no mechanical ventilation.
 - (c) The ventilation system is constructed in a manner that allows exhaust air to enter into other parts of the building or another building air supply system.
 - (d) The make-up air exceeds the exhaust, which forms a positive air pressure in the range in relation to adjacent areas.
 - (e) Air is exhausted anywhere other than at the bullet trap.
 - (f) Make-up air is supplied only from adjacent areas of the building with no provision for inclusion of outside air.
 - (g) The static pressure, as measured from 6 inches inside the range entrance to 6 inches outside the range, is measured less than -.05 inches of wg or in excess of -.2 inches of wg.
 - (h) The range is under positive pressure.
 - (i) Gaps greater than ½ inch around or below the entrance of a doorway to the range that are not sealed.
 - (j) The supply and exhaust air systems are not electrically interlocked.

c. Range lighting.

- (1) *Safe* ranges.
 - (a) Lighting is uniform, non-glaring and does not cause shadows.
 - (b) Illumination is at least 100 foot-candles on the targets, 50 foot-candles behind the shooter and 60 foot-candles at the firing line.
 - (c) All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range.
 - (d) Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line.
 - (e) Emergency lights are provided behind the firing line and are in working condition.
 - (f) Exit lights are provided as required.
 - (g) Lighting of at least 20 foot-candles is provided behind the bullet trap for maintenance.
- (2) *Unsafe* ranges.
 - (a) Illumination is below 100 foot-candles on targets, 50 foot-candles behind the shooter and 60 foot-candles at the firing line.

- (b) Portions of the lighting fixtures are not protected by baffles.
- (c) Electrical hazard exists in the range.
- d. Bullet traps.
 - (1) *Safe* ranges.
 - (a) A bullet trap is permanently installed in the range.
 - (b) Bullet traps are of a commercial design that complies with the requirements of CEHND 1110-1-18, DG 415-1 paragraph 2-3.3.1, and this regulation.
 - (c) Forward edges in an escalator or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets.
 - (2) *Unsafe* ranges.
 - (a) Steel bullet traps are bowed, punctured or severely pitted.
 - (b) Plates in the bullet trap are flush with the other plates. Welded seams are ground smooth.
 - (c) Any type of portable bullet stop is used.
 - (d) Forward edges in an escalator or venetian blind type bullet trap are maintained in less than a knife edge condition.
- e. Targets and target carriers.
 - (1) *Safe* ranges.
 - (a) A target retrieval system is operable in all lanes and is constructed in such a manner as to minimize flat surfaces exposed to the firing line. (Firing lanes without a target retrieval system shall not be used).
 - (b) Only paper targets are used.
 - (2) *Unsafe* ranges. Target retrieval system is inoperable or not installed in the entire range, or target retrieval system exposes flat surfaces to the firing line.
- f. Lead levels.
 - (1) *Safe* ranges.
 - (a) For personnel exposed less than 30 days per year, lead levels do not exceed 0.05 milligrams per cubic meter (mg/m^3) over an 8 hour period, see Table 1-1.
 - (b) For personnel exposed more than 30 days per year and for all non-DOD personnel, lead levels do not exceed 0.03 mg/m^3 over an 8 hour period, see Table 1-1.
 - (c) For personnel 17 years of age or younger, see Table 1-1.
 - (2) Limited use ranges.
 - (a) For personnel exposed less than 30 days per year, lead levels exceed 0.05 mg/m^3 for an 8 hour period but do not exceed 1.0 mg/m^3 in any breathing zone or general area sample, see Table 1-1. Personnel exposures shall be controlled by limiting the shooters to the times described in Table 1-1.
 - (b) For personnel exposed more than 30 days per year and for all non-DOD personnel, lead levels exceed 0.03 mg/m^3 over an 8 hour period but do not exceed 1.0 mg/m^3 in any breathing zone or general area sample, see Table 1-1.
 - (3) *Unsafe* ranges.
 - Lead levels in air sample results exceed 1.0 mg/m^3 in any breathing zone or general area samples, see Table 1-1.

2-3. Range Use

- a. Indoor firing ranges shall not be used for any purpose other than firing. (i.e., they shall not be used for classrooms, exercise rooms, storage, etc.).
- b. Ranges classified as *unsafe* may be used for other purposes only after proper decontamination IAW the guidance provided in NG Pam 420-15.
- c. The ventilation system is in operation at all times during firing or cleaning.
- d. Equipment or furniture shall not be stored or maintained in the range, plenum area or behind the bullet trap. (For removal of equipment or furniture, use cleaning instructions provided in NG Pam 420-15, paragraph 3-3).
- e. A hand-held ABC-type fire extinguisher is located near the entrance door, inside the firing range.

2-4. Prohibitions

- a. Personnel shall *not* be permitted in the plenum area during firing even if designed for observation.
- b. Plenum area and area behind the bullet trap shall *not* be used for storage of any equipment.
- c. The area directly in front of the plenum wall shall be kept clear at all times to preclude obstruction of airflow.
- d. Variable speed fans are *not* permitted.
- e. Dry sweeping of IFRs is *prohibited*. Brooms shall not be stored in the range.

- f. Walking downrange is *prohibited* for individuals other than maintenance and inspection personnel.
- g. Pellets, BBs, "Shot" type rounds that disperse pellets & BBs, magnum (high velocity in excess of design specifications) and armor piercing rounds are *prohibited* in all IFRs except for the following:
 - (1) Air Rifles owned by the Junior Reserve Officer Training Corps (JRROTC) program (Daisy Model 873 .177 caliber Air Rifle or similar) that are purchased by the JRROTC for Marksmanship training specifically. These are considered Army Weapons.
 - (2) JRROTC students will follow guidance published in the JRROTC Marksmanship Instructor Course, and instructors will be qualified per JROTC published standards.
- h. To prevent contamination with lead dust, clothing or equipment that is not required for firing shall *not* be permitted into the range.
- i. Storage of ammunition and explosives in IFRs is *prohibited*, except in approved and licensed facilities.
- j. There are no open floor drains in the range.
- k. Carpet will not be located in any part of the range (Contact the State Environmental Office for hazardous waste disposal procedures).

Chapter 3

Personal Protective Equipment

3-1. Personal Protective Equipment (PPE)

- a. Eye protection. All personnel in an IFR during firing shall wear eye protection that meets the requirements of American National Standards Institute (ANSI) Z87.1-2004, Practice for Occupational and Educational Eye and Face Protection.
- b. Hearing protection. All personnel in an IFR during firing shall wear ANSI approved hearing protection. When noise levels exceed 165 dBP, personnel must wear earplugs in combination with noise mufflers, DA Pam 40-501.
- c. Respiratory protection. Required National Institute for Occupational Safety and Health (NIOSH) respiratory protection requirements for IFR conversions or cleanup operations are contained in NG Pam 420-15, paragraph 2-5.

3-2. Posting Warning Signs

- a. The following signs shall be posted in or in the vicinity of IFRs IAW AR 385-63:
 - (1) Eating, Drinking and Smoking are *prohibited*.
 - (2) Dry Sweeping is *prohibited*.
 - (3) Wash Hands and Face Immediately Following Firing.
 - (4) Only the following Ammunition is *authorized* for use on this Range: _____.
 - (5) Hearing Protection *shall be* properly worn during firing.
 - (6) Proper Safety Glasses/Goggles *shall be* worn during firing.
 - (7) Storage of furniture or other items of equipment is *not* permitted in the range.
- b. The following signs shall be posted on the entrance door to the range:
 - (1) Noise Hazardous Area.
 - (2) Danger Lead Hazard Area.
 - (3) Children under the age of six, pregnant women or women who are breastfeeding are *not* permitted in this area.
- c. An illuminated warning sign, which is interlocked with the range ventilation switch, shall be located outside of the firing range to alert individuals that the range is in use.
- d. Each firing lane shall be numbered at the firing line and at the bullet trap and be visible to all shooters. This is to ensure that shooters use the correct target.
- e. A warning sign *shall be* posted outside of the access door to the bullet trap, which warns personnel not to enter during range operation.

Note: All signs shall meet the requirements of DA Pam 385-63.

3-3. Range Standing Operating Procedures (SOP)

- a. Each IFR shall have a written SOP, which is approved by the SOHM, see Appendix B.
- b. Range SOPs shall include, as a minimum, the following:

(1) The requirement for establishment and maintenance of a log of visitors for the IFR. The log shall include the following information for all visitors:

- (a) Name and age of shooter.
- (b) Organizations (if civilian, include address and phone number).
- (c) Sign-in and sign-out times and date.
- (d) Type of ammunition used and number of rounds fired.

(2) The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent RSO.

- (3) Work practices including permissible and banned practices as specified by this regulation.
- (4) Instructive guidance for all range procedures.

(5) Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.

- (6) Authorized ammunition for the range.
- (7) The requirement for posting of signs IAW paragraph 3-2 of this regulation.
- (8) Cleaning and maintenance requirements.
- (9) Personal protective equipment requirements for maintenance, firing and cleaning.
- (10) Ammunition/Weapon Malfunction reporting procedures IAW AR 75-1.

Surveillance.

- (a) Name and phone number of supporting Quality Assurance Specialist – Ammunition
- (b) Name and phone number of Logistics Assistance Representative – Weapons.
- (c) DA Form 4379 (Ammunition Malfunction Report).

(11) Special Packaging Instruction, DD Form 2169 (No. AM 1305 Demilitarization (5.56mm thru .50 caliber) – Packaging, packing and marking instructions for the preparation of various quantities of small arms ammunition for demilitarization due to loss of ammunition lot integrity or serviceability).

(12) Ammunition accountability briefing using DA Form 5515 (Training Ammunition Control Document).

- (13) Amnesty Ammunition Policy and unexploded ordnance Safety Awareness Briefing.
- (14) User Signature Page to document acknowledgement of procedures.

Chapter 4

Indoor Firing Range Inspections

4-1. Inspection Requirements

The first part of each inspection shall be the physical safety inspection conducted by the SOHM. Once the firing range has passed this portion of the inspection, the State Safety Office will contact an NGB Regional Industrial Hygiene Office for the ventilation survey and air sampling completion requirements.

4-2. Initial Inspections

a. An initial inspection of all new and renovated IFRs shall be completed before the facility is accepted. The inspection report shall be kept on file with the State Safety and Occupational Health Office. The checklist in Appendix F shall be used for this purpose. See paragraph 1-15 for record maintenance requirements.

b. Findings on the initial firing range inspection, ventilation measurements, and air sampling results shall determine the range classification.

4-3. Safety Requirements

a. A safety inspection of each active range shall be made annually to ensure that safety standards, procedures and records are maintained in the operation of the range. These inspections shall be completed by State Safety personnel IAW AR 385-10. The checklist in Appendix F shall be used for this purpose.

b. In accordance with DA Pam 385-63, the annual inspection shall be performed within 45 days of the anniversary date of the initial inspection or the last annual inspection. See paragraph 4-7 for record maintenance requirements.

c. Verify that ventilation measurements have been recorded every 480 hours of operation.

d. Ensure that air sampling has been conducted after changes or additions have been made to the range.

4-4. Ventilation Requirements

- a. Measure ventilation every 480 hours of operation, after changes or additions have been made to the range, or every two years, whichever comes first.
- b. Evaluate ventilation IAW procedures for supply and exhaust ventilation systems, firing line velocities and static pressure readings.
- c. If air from the IFR exhaust ventilation system is re-circulated into the supply system of the range, the system shall have a high efficiency particulate air (HEPA) filter with reliable back-up filter. In addition, controls to monitor the concentration of lead and carbon monoxide in the return air *shall be* installed and programmed to bypass the recirculation system automatically if the filter system fails. This system shall be operating and maintained IAW 29 CFR 1910.1025(e)(4)(ii).

4-5. Air Sampling Requirements

- a. Initial air sampling to determine airborne lead dust levels during prescribed firing procedures shall be conducted for all IFRs prior to routine use.
- b. Air sampling shall be conducted for each type of ammunition to be used in the range.
- c. After the initial air sampling, air sampling is required only if changes or additions have been made to the range, there are changes in ammunition or weapons used in the range, after 480 hours of operation, or every two years, whichever occurs first.
- d. The SOHM is responsible for ensuring that IFRs are measured for ventilation and air sampling to determine airborne lead concentrations. The inspector must be by a person certified and designated by a Regional Industrial Hygienist to perform inspections, evaluations, and determinations of IFRs IAW with OSHA standards, other nationally accepted standards, and accepted IH practices for maintenance, cleaning, conversion, ventilation, and air sampling of IFRs..

4-6. Inspection Reports

A completed inspection report shall be provided to the State Adjutant General for information or action as appropriate. An information copy shall also be provided to the commander of the facility, to the SOHM, and to the CFMO (for project planning purposes). A complete inspection report shall consist of the completed safety inspection checklist, ventilation data, and air sample results (initial inspection and as required by paragraph 4-2 above). Subsequent inspections shall be made as a follow-up check against results of previous inspections to ensure that required corrective actions have been accomplished, and there are no adverse changes to the buildings' integrity, safety equipment, environment or safe operating procedures.

4-7. Records Maintenance

The SOHM shall maintain a record of all inspections for each IFR in the State. All inspections after the initial one shall be used as follow-up checks against previous inspection reports. This is to ensure that required corrective actions have been accomplished and that there have been no structural changes to the building, environmental conditions or safe operating procedures. These records shall be checked during program evaluations and industrial hygiene surveys.

Chapter 5**Range Operation and Control of Potential Lead Poisoning****5-1. Control of Potential Lead Poisoning [Occupational Safety and Health Administration (OSHA) Lead Standard]**

The requirements of the OSHA lead standard (29 CFR 1910.1025) shall be followed. The requirements include development of a written compliance program for the protection of workers from lead exposures (29 CFR 1910.1025(e)(3)). The program shall include at a minimum the following:

- a. A description of each operation where lead is emitted.
- b. Methods used to achieve compliance.
- c. Report of the technology considered in meeting the permissible exposure limit.
- d. Air monitoring data, which documents the source of air emissions.
- e. A detailed schedule for implementation of the program.
- f. Work practices including PPE, housekeeping, hygiene facilities and practices.
- g. Administrative control schedule.

- h. Personnel enrollment in medical surveillance.
- i. Other relevant information.

5-2. Alternative Ammunition

- a. Reduced-lead and lead-free ammunition (non-lead containing bullets) has become commercially available. These alternatives to conventional ammunition should be considered for training use if HQDA and ARNG command policy allows.
- b. Lead-free ammunition is being developed which shall have the same ballistic properties as the lead counterparts. The potential exists for some lead containing ammunition to be completely replaced by lead-free ammunition for training and operational uses.
- c. Until lead-free ammunition is available, lead exposure can be significantly reduced by the use of jacketed rounds. Most bullet traps are rated for the use of jacketed ammunition, but this should be verified with the bullet trap manufacturer.

5-3. Maintenance Requirements

- a. The following are minimum maintenance requirements, which shall be performed every three months by the RCO or by a person designated by the facility commander:
 - (1) Inspect the ventilation system fan for condition of belts to ensure that the belts are not torn or frayed and that they are not slipping.
 - (2) Evaluate differential pressure and compare it to the baseline differential pressure reading for every filter or filter set in the range and between the range and the outside. Differential pressure readings above the baseline on filter systems indicate not enough airflow and the requirement to change or clean the filters. Any other changes shall be reported to the State Safety and Occupational Health Office for further evaluation.
 - (3) Inspect louvers, if applicable, to ensure that they are opening fully.
 - (4) Lubricate the bullet trap (if applicable).
 - (5) Inspect the bullet trap for pitting or other damage and for sharp edges on venetian blind type bullet traps. Bullet trap will be inspected after every firing event for individuals who are not organic ARNG soldiers.
- b. The bullet trap will be cleaned every 480 hours of operation at a minimum, or when the trap is three quarters full.
- c. The range ventilation system will be operational during all bullet trap cleaning procedures.
- d. All personnel involved in cleaning of the bullet trap will wear a NIOSH (P-100) approved respirator, and proper personal protective equipment.
- e. All debris from the bullet trap will be collected, package and turned in, IAW guidance from the environmental office.

5-4. Housekeeping

The commander/supervisor must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust for all active IFRs classified as *safe* or *limited use*. Routine housekeeping and maintenance is essential to keeping the range operating properly, and to controlling associated hazards.

- a. Periodic cleaning.
 - (1) The ventilation system will be in operation during all cleanup operations, to ensure that a negative pressure environment is maintained.
 - (2) Wet cleaning methods or vacuum cleaning with HEPA filtration shall be utilized during normal cleaning operations. When the wet method is utilized, pour the lead contaminated water into a 55 gallon plastic drum. Allow the water to evaporate until lead deposits or sludge appears.
 - (3) Dry sweeping, dusting, wiping or blowing with compressed air *shall not* be permitted.
 - (4) When performing the cleaning, clean the floor and all horizontal surfaces behind the firing line to the plenum wall and vacuum fifteen feet in front of the firing line.
 - (5) Cleaning should be performed every three months, or when there is a visible accumulation of lead dust.
- b. Annual cleaning.
 - (1) The ventilation system will be in operation during all cleanup operations, to ensure that a negative pressure environment is maintained.

(2) Wet cleaning methods or vacuum cleaning with HEPA filtration shall be utilized during normal cleaning operations. When the wet method is utilized, pour the lead contaminated water into a 55 gallon plastic drum. Allow the water to evaporate until lead deposits or sludge appears.

(3) Dry sweeping, dusting, wiping or blowing with compressed air *shall not* be permitted.

(4) An approved NIOSH respirator (P-100) for lead exposure *shall be* used during cleaning operations.

(5) During range cleaning operations, workers shall wear coveralls or similar full-body clothing, gloves, hat and change of shoes or disposable booties, face shields and goggles, or other equipment to protect the workers skin and eyes.

(6) Blowing, shaking or any other means, which disperses lead into the air, *shall not* be used to remove lead dust accumulated on worker's clothing or equipment. A designated area shall be used for changing clothes to prohibit the spread of contamination. Workers shall shower and change clothes before release from work.

(7) Wash water contaminated with lead can be collected and allowed to slowly evaporate leaving lead deposits/sludge that may be collected in plastic containers, placed in metal drums, and stored for future delivery to an authorized hazardous waste disposal site. Drums *shall be* properly labeled to identify contents. Disposal of containerized waste *shall be* coordinated IAW state hazardous waste program requirements. Contact the ARNG State Environmental Office for disposal instructions.

(8) The State Environmental Office shall coordinate removal and disposal of all containerized hazardous waste derived from routine use, cleaning, and maintenance of IFRs. Contact your State Environmental Office for proper disposal instructions when bullet trap catch trays are $\frac{3}{4}$ full. Spent cartridge cases shall be collected and processed in accordance with ammunition inventory and accountability procedures, AR 710-2, and DA Pam 710-2-1.

(9) Prior to converting an IFR to other uses, the entire range area shall be properly decontaminated of any lead residue. Cleaning and decontamination instructions are prescribed in NG Pam 420-15, paragraphs 2-3, 3-2, 3-3, and 3-4.

5-5. Maximum Exposure Hours

a. Personnel exposure limits for intermittent atmospheric lead contamination are contained in a table of lead exposure limits (Table 1-1). This table was developed to control intermittent lead exposure and to establish maximum allowable hours of exposure based on the airborne lead concentration and the number of days firing per year.

b. Intermittent exposures to lead in IFRs shall be controlled according to the criteria provided in the table of lead exposure limits as an interim control measure only. Maximum effort *shall be* made to introduce permanent control measures to reduce the airborne lead levels to 0.03 mg/m^3 or less.

c. Exposure records shall be maintained by the commander of the facility on all personnel who use the firing range when the airborne lead levels exceed 0.03 mg/m^3 . These records shall contain the airborne lead concentrations and the amount of time spent on the range for each individual.

d. Other potential lead exposure, including off duty firing, may contribute to an individual's overall exposure and should be considered in establishing maximum allowable exposure time.

5-6. Extent of Use

a. The extent of use for any IFR *shall be* based on permissible exposure of all using personnel to concentrations of airborne lead dust.

b. Under no circumstances shall pregnant women, or women who are breastfeeding be permitted in an IFR, IAW 29 CFR 1910.1025, Appendix C, Section II (5).

c. Personnel 17 years of age and younger are *prohibited* from entering any range area with a lead concentration greater than 0.100 mg/m^3 , IAW Table 1-1. For ranges with lead concentrations less than 0.100 mg/m^3 , follow the guidelines in Table 1-1.

d. Use of the IFR by non-military organizations shall be approved and documented in writing by the SOHM.

**Appendix A
References**

**Section I
Required Publications**

This section contains no entries.

**Section II
Related Publications**

American Conference of Governmental Industrial Hygienists (ACGIH)
Industrial Ventilation, current edition, "A Manual of Recommended Practices"

American National Standards Institute (ANSI) Z87.1-2004
Practice for Occupational and Educational Eye and Face Protection

AR 11-34
The Army Respiratory Protection Program

AR 40-5
Preventive Medicine

AR 40-66
Medical Record Administration and Health Care Documentation

AR 75-1
Ammunition Malfunction Procedures

AR 350-38
Training Device Policies and Management

AR 385-10
The Army Safety Program

AR 385-40
Accident Reporting and Records

AR 385-63
Range Safety

AR 385-64
U.S. Army Explosives Safety Program

AR 420-70
Buildings and Structures

AR 710-2
Supply Policy Below the National Level

ARNG Design Guide (DG) 415-1
Design Guide for Armories

CEHND 1110-1-18

USACE (U.S. Army Corp of Engineers) Design Manual for Indoor Firing Range

DA Pam 385-63

Range Safety

DA Pam 385-64

U.S. Army Explosives Safety Program

DA Pam 40-501

Hearing Conservation

DA Pam 710-2-1

Using Unit Supply System (Manual Procedures)

DHEW NIOSH 76-130

Lead Exposure and Design Considerations for Indoor Firing Ranges

DOD 6055.5-M

Occupational Medical Surveillance Manual

NGR 5-1

National Guard Grants and Cooperative Agreements

NGR 385-10

Army National Guard Safety and Occupational Health Program

NGR 415-5

Army National Guard Military Construction Program Development and Execution

NGR 420-10

Construction and Facilities Management Office Operations

NG Pam 420-15

Guidelines and Procedures for Rehabilitation and Conversion of Indoor Firing Ranges (IFRs)

TB MED 502

Occupational and Environmental Health, Respiratory Protection Program

TB MED 506

Occupational and Environmental Health, Occupational Vision

TC 25-8

Training Ranges

TC 25-8-1

Army Special Operations Forces Training Ranges

29 CFR Revision, Part 1910

Occupational Safety and Health Standards

Section III
Prescribed Forms

This section contains no entries.

Section IV
Referenced Forms

DA Form 11-2-R
Management Control Evaluation Certification Statement

DA Form 285-AB-R
U. S. Army Abbreviated Ground Accident Report (AGAR)

DA Form 4379
Ammunition Malfunction Report

DA Form 4700
Medical Record-Supplemental Medical Data

DA Form 4753
Notice of Unsafe or Unhealthy Working Condition

DA Form 5515
Training Ammunition Control Document

DD Form 1390
FY __ Military Construction Program

DD Form 1391
FY __ Military Construction Project Data

DD Form 2169
Packaging Instruction, Special

NGB Form 420-R
OMNG Project Request

Appendix B
Example of Indoor Firing Range (IFR) SOP

STATE OF _____, DEPARTMENT OF MILITARY AFFAIRS
 XXXX SOUTH MAIN STREET
 SOMEWHERE, _____ XXXXX-XXXXX
 _____ READINESS CENTER INDOOR FIRING RANGE
 STANDING OPERATING PROCEDURE (SOP)

B-1. References.

- a. AR 385-10, Army Safety Program, 29 February 2000.
- b. AR 385-40, Accident Reporting and Records, 1 November 1994.
- c. AR 385-63, Policies and Procedures for Firing Ammunition for Training, Target Practice and Combat, 19 May 2003.
- d. DA Pam 385-63, Range Safety, 10 April 2003.
- e. NGR 385-10, Army National Guard Safety And Occupational Health Program, 7 October 1988.
- f. NGR 385-15, Policy, Responsibilities, And Procedures For Inspection/Evaluation And Use Of ARNG Indoor Firing Ranges, 30 March 1990.
- g. Title 29 Code of Federal Regulations (CFRs), Part 1910.1025, Lead, Toxic and Hazardous Substances, Occupational Safety and Health Administration, Department of Labor.
- h. Title 29 CFR, Part 1200, Hazard Communication, Toxic and Hazardous Substances, Occupational Safety and Health Administration, Department of Labor.
- i. Title 29 CFR, Part 1926, Safety and Health Regulations for Construction, Occupational Safety and Health Standards, Occupational Safety and Health Administration, Department of Labor.
- j. Title 29 CFR, Part 1960, Training, Basic Program Elements for Federal Employees OSHA, Parts 1960, Occupational Safety and Health Standards, Occupational Safety and Health Administration, Department of Labor.
- k. Technical Guide 141, Industrial Hygiene Sampling Guide, February 2005.

B-2. Purpose.

The _____ Readiness Center IFR SOP is published to establish procedures to minimize the exposure of lead to personnel and provide uniform safe range operations and maintenance procedures. The provisions set forth herein shall govern all actions and personnel associated with range operations.

B-3. Review and Update.

This SOP will be approved upon appointment of a new commander and then reviewed yearly by the commander of the facility and the State Safety and Occupational Health Office. A cover sheet, which documents the signature and dates of personnel involved with the review of the SOP, should be attached.

B-4. General.

- a. Each Officer In-Charge or Non-Commissioned Officer In-Charge (OIC/NCOIC) of range operations and the range safety officer (RSO) shall maintain a current copy, and be familiar with the provisions of this SOP, DA Pam 385-63 and NGR 385-10.
- b. These directive and military regulations are applicable to all active duty military, military technicians, federal and state civilian employees and civilian personnel, to include local or state police authorities.
- c. All Range Control Officers (RCOs), OIC/NCOIC, and Safety Officers must be trained in the operations of the specific range and weapon and ammo safety.

B-5. Range Control.

- a. The _____ Readiness Center Commander shall appoint, in writing, a Commissioned Officer, Warrant Officer, or a Senior NCO, E-7 or above, to the position of RCO.
- b. The RCO is responsible to perform the following:
 - (1) Providing safe, functional ranges and training facilities, assigning priorities, notify Readiness Center personnel of times when the range shall be in use, coordinate and schedule all activity on the firing range, and issuing range equipment and targets.
 - (2) Enforcing the facility range safety program and SOP.

(3) Determining which weapons and ammunition are authorized for the range. This should be coordinated through the Sate Safety and Occupational Health Office and in accordance with manufacturers' specifications.

(4) Ensuring that the range is secured when not in use.

(5) Ensuring that nothing is stored at the range.

(6) Ensuring that all OIC/NCOICs and RSOs are thoroughly familiar with the weapons in use, and that the appropriate operators' manuals for the weapons are on hand.

(7) Ensuring that all accidents and incidents involving weapons and ammunition are investigated and reported by the unit leadership in accordance with AR 385-40 and NGR 385-10.

(8) Preparing a range OIC/NCOIC briefing packet for all using units. The packet should contain, as a minimum; a copy of this SOP, emergency telephone numbers of local rescue authorities, and a current copy of the Accident Prevention Plan (Appendix C of this NGR).

(9) Ensuring that mandatory signs listed in NGR 385-15, paragraph 3-2a are posted as required.

(10) Ensuring that all OIC/NCOICs and RSOs are trained on the proper operation for the range and weapons safety.

(11) Ensuring that all units, individuals, or organizations submit a complete risk assessment prior to authorization and use of a range.

(12) Ensuring that the required Personal Protective Equipment (PPE), such as hearing protection, is provided by the using unit and is used.

(13) Maintaining a Lead Abatement Plan. Ensuring that Industrial Hygiene has evaluated the range annually for lead. Maintaining all reports and evaluations.

(14) Maintaining and updating files of current and historical on the usage of the IFR.

B-6. RCO Qualifications.

His or her commander may appoint any individual in the rank of E-7 and above to be the RCO. Appointment orders for all RCOs shall be maintained on-file at the facility.

a. Commanders of each facility shall ensure that all RCOs have been properly instructed and are competent in performance of their duties as outlined in this SOP and DA Pam 385-63.

b. All RCOs shall attend the Range Safety Course.

c. Law enforcement and civilians requesting appointment to perform RCO duties, shall show evidence that they have completed an Army and/or National Rifle Association approved firearms instructor's course or equivalent prior to appointment.

B-7. Range OIC/NCOIC.

The commander or supervisor of all using units or groups shall designate an OIC/NCOIC in the grade of E-6 or above to be the responsible for the safe conduct of firing and proper use of the facilities. The commander/supervisor shall ensure that all appointed individuals are qualified to perform their assigned duties as outlined below and IAW DA Pam 385-63. The duties of the range OIC/NCOIC shall include but are not limited to the following:

a. Prior to firing.

(1) Receive a thorough briefing from the RCO, and conduct an inspection of the range with the RCO, or his/her designated representative. If the condition of the range is acceptable, assume control and request clearance from the RCO to fire.

(2) Ensure the overall safe conduct of training and the proper use of the facility.

(3) Ensure that all participants are familiar with the verbal commands, hand signals, range procedures and safety requirements.

(4) Be present when the range is in use and determine when it is safe to fire.

(5) Be familiar with the Accident Prevention Plan and have a current copy on hand prior to commencement of firing.

(6) Ensure that at least three individuals are present on the range when the range is in use.

(7) Ensure that all individuals using the range have signed-in on the roster maintained by the Readiness Center/facility Commander.

(8) Ensure that the range has a working telephone, or that other means of emergency communication is available.

(9) Ensure that appropriate emergency medical personnel have been notified that the range is in use, and that the projected hours of operation are from _____ to _____ hours.

(10) Implement risk management in all phases of the training events. A completed risk assessment will be submitted prior to authorization to the RCO before the range is to be used.

(11) Ensure that all weapons and ammo used on the ranges are authorized by the RCO.

(12) Ensure that all weapons must be safety checked before firing.

b. During Firing.

(1) Ensure that the RSO is physically present at the IFR training event.

(2) Ensure that weapons malfunctions/jams are cleared only at the direction of the RSO in accordance with the procedures established in the operators' manual for the weapon.

(3) Ensure that all ammunition malfunctions are reported to RCO IAW AR 75-1.

(4) Stop all training in the event of a serious accident or injury. Ensure that all accidents are investigated and reported IAW AR 385-40.

(5) Ensure that medical support is available.

(6) Ensure that weapons may only be fired from designated firing positions.

(7) Ensure that firers confine their firing to targets in their lane.

(8) Ensure that the required hearing and eye protection is available and used.

c. After Firing.

(1) Ensure that all bullet casings are removed from in front of and behind the firing line and that the range is restored to a serviceable condition. *Dry sweeping of the range is prohibited.*

(2) Conduct a final inspection of the range. Secure the range, and turn the keys and shooters log into the RCO or his/her designated representative.

B-8. RSO.

The commander or supervisor of all using units or groups shall designate an RSO in the grade of E-5 or above to be the responsible for the safe conduct of firing and proper use of the facilities. RSO will have no other duties during that period of training. The commander/supervisor shall ensure that all appointed individuals are qualified to perform their assigned duties as outlined below and IAW DA Pam 385-63. The duties of the RSO shall include but are not limited to the following:

a. Prior to firing.

(1) Receive training and a thorough briefing from the RCO, and conduct an inspection of the range with the RCO, or his/her designated representative.

(2) Be knowledgeable of the weapons to be used and ensure that only authorized weapons and ammunition are used. Ensure that the proper operators' manuals are available for each individual using the range.

(3) Be physically present during all phases of IFR training events.

(4) Ensure that all personnel wear the proper hearing and eye protection as required.

(5) Ensure that weapons and personnel are properly positioned.

b. During Firing.

(1) Ensure that personnel do not leave the firing line without the permission of the RSO.

(2) Ensure that the muzzle of each weapon is pointed downrange at all times. Personnel may holster their handguns after being cleared by the RSO to do so.

(3) Ensure that revolvers, when not in use, shall have cylinders open and automatic weapons shall have magazines removed and the slide/receiver locked to the rear. Rifles shall also have the magazine removed, if applicable, bolts and/or slides open or locked to the rear when not in use. Weapons shall be carried to and from the firing line in the configuration described above, with the muzzle pointed downrange.

(4) Ensure that weapons malfunctions/jams are cleared only at the direction of the RSO in accordance with the procedures established in the operators' manual for the weapon.

(5) Report all accidents to the OIC/NCOIC.

(6) Ensure that weapons are cleared and checked during temporary suspension of firing.

(7) Ensure that firing is stopped promptly when an unsafe act is observed or reported.

(8) Prohibit persons to walk in front of the firing line during firing. Lanes with inoperable target retrieval systems shall not be used.

(9) Limit firing time, if applicable. This limitation shall be based on air-sampling results for individuals using the range and ventilation measurements. Contact the State Safety and Occupational Health Manager (SOHM) to determine if the range has time limitations placed upon it.

(10) Ensure that the approved risk management plan is not deviated.

(11) Stop all firing in the event of a serious accident or injury.

c. After Firing.

- (1) Ensure that all weapons are cleared prior to being removed from the firing line.
- (2) Ensure that all individuals on the range thoroughly wash their hands and face immediately after leaving the range.

B-9. Range Restrictions.

- a. Weapons authorized: _____
- b. Ammunition authorized: The _____ Readiness Center is restricted to firing the following ammunition based upon manufacturer specifications:

Example:

- (1) .22 caliber including the M-16 with adapter
- (2) .38 caliber
- (3) .45 caliber
- (4) 9 mm pistols

Note: No other weapons can be fired without the approval of the SOHM.

c. Pellets, BBs, “Shot” type rounds that disperse pellets & BBs, magnum and armor piercing rounds are *prohibited* in all IFRs except for the following:

(1) Air Rifles owned by the Junior Reserve Officer Training Corps (JRROTC) program (Daisy Model 873 .177 caliber Air Rifle or similar) that are purchased by the JRROTC for Marksmanship training specifically. These are considered Army Weapons.

(2) JRROTC students will follow guidance published in the JRROTC Marksmanship Instructor Course, and instructors will be qualified per JROTC published standards.

- d. Dry sweeping of the range is prohibited.
- e. Trick shooting including, quick draw, cross shooting (shooting outside a single lane) and hip shooting is prohibited.
- f. Storage of any item in the range is prohibited.
- g. Smoking and consumption of food or beverages is prohibited.
- h. Proper hearing and eye protection shall be worn during firing.
- i. Civic groups with individuals under 17 years of age or younger are required to have written permission from the ARNG SOHM prior to firing.
- j. Personnel shall not be allowed in the observation/plenum area during firing.

B-10. Medical Support:

Combat Life Saver with an aid bag.

B-11. Equipment Requirements:

- | | |
|-------------------------------|-------------------------|
| a. Current Risk Assessment | Using Unit |
| b. Range SOP | Issued by Range Control |
| c. Targets | Issued by Range Control |
| d. Safety Paddles | Issued by Range Control |
| e. Clearing Rods | Issued by Range Control |
| f. Stapler/Staples | Issued by Range Control |
| g. FM and TM’s | Using Unit |
| h. Hearing and Eye Protection | Using Unit |

B-12. Personnel Requirements

- a. OIC/NCOIC: E-6 or above.
- b. RSO: E-5 or above.
- c. Safety NCO’s as determined by the OIC.
- d. Combat Life Saver

B-13. Mandatory Signs.

As a minimum the following signs shall be posted on the door/entrance to the range or inside as appropriate:

- a. Inside the Range.
 - (1) Eating, drinking and/or smoking are prohibited.
 - (2) Dry sweeping is prohibited.

- (3) Wash hands and face immediately after firing.
- (4) Hearing protection shall be worn during firing.
- (5) Safety glasses/goggles shall be worn during firing.
- (6) Storage of furniture and other items is prohibited.
- (7) The following ammunition is authorized for this range: _____, _____,

_____, and _____.

b. On the Door to the Range.

- (1) Noise Hazardous Area.
- (2) Danger Lead Hazard Area.
- (3) Pregnant women are not permitted in this area.

B-14. Authorized Use of the Range.

Utilization of the _____ Readiness Center range is authorized for organizations of the _____ Army National Guard conducting unit training and for the marksmanship team conducting competition or in preparation for competition. Non-Military personnel are subject to the same requirements and regulations as National Guard personnel and shall be in strict compliance with this SOP, Army Regulations, ARNG regulations and applicable subject letters and directives from the Adjutant General, State of _____.

B-15. Release of Liability.

a. The military Range Control Officer shall obtain a signed Release of Liability (Appendix D of this NGR) form from each civilian user of the range. Signed agreements shall be kept on file with the commander of the facility.

b. Organizations with members who are minors shall obtain Permission and Release of Liability (Appendix D of this NGR) form signed by a parent or guardian. *The ARNG SOHM shall be notified prior to minors firing on ARNG ranges.*

B-16. Denial of Range Access.

The commander of the facility may withdraw range privileges from any person or organization that willfully disobeys rules and regulations pertaining to range operations. In addition, range privileges may be denied to an individual whose knowledge of the principles of marksmanship is deficient to the degree of posing a safety hazard.

FOR THE COMMANDER:

Commander

John Doe
CPT, IN, ARNG
OIC/Readiness Center

**Appendix D
Permission and Release of Liability Certificate**

_____ ARNG
Somewhere, USA
Date: _____

BE IT KNOWN TO ALL: WHEREBY I, _____; have been granted permission to use firearms on the indoor firing range located at the _____ Army National Guard Readiness Center; and whereas I am doing so entirely upon my own initiative, risk, and responsibility; now therefore, in consideration of the permission extended to me by the United States Government and/or State of _____ through their officers and agents do hereby for myself, heirs, executors and administrators, remiss, release and forever discharge the Government of the United States and the State of _____, the _____ Army National Guard, their officers, agents, employees expressly including the Adjutant General of the State of _____, acting officially or otherwise, from any and all claims, demands, action, or causes of action on account of my death, or account of injury to me or my property which may occur from any cause during the period of the above granted permission. I further acknowledge and certify by my signature below that I have read and understand the applicable range facility standing operating procedure (SOP) and shall comply with it and all applicable safety regulations.

Signature: _____

Witness to Signature: _____

In case of emergency, please contact:

Name _____

Address _____

Telephone Number _____

TO BE SIGNED BY THE PARENT OR GUARDIAN OF INDIVIDUALS UNDER 18 YEARS OF AGE. NO MINOR SHALL BE ALLOWED TO UTILIZE AN ARNG FIRING RANGE WITHOUT PARENT OR GUARDIAN SIGNATURE.

I, said parent, and/or legal guardian of the above-named minor, hereby give my consent to said minor executing this release, and do hereby also release and agree to save harmless the parties above-named as to said minor and as to myself as an individual, and for our heirs, executors, administrators and assigns.

Signature of Parent or Guardian: _____

**Appendix E
Indoor Firing Range Accident Response Plan**

E-1. Occurrence of injury or mishap.

If a mishap or injury occurs at any time during the conduct of range operations, the following procedures shall be followed:

- a. The OIC/NCOIC or person in charge of the range shall order a cease-fire immediately. *All weapons shall be cleared and muzzles pointed downrange.*
- b. Render first aid to the injured as appropriate.
- c. The OIC/NCOIC or person in charge of the range shall direct an individual to telephone and/or radio for medical assistance. *The primary telephone to be used in case of an emergency is located _____. The emergency numbers are _____.*
- d. A person shall be stationed at the main entrance of the range to provide direction to emergency medical personnel.
- e. After all injured personnel have been removed or attended to:
 - (1) The OIC/NCOIC shall notify the RCO of the mishap.
 - (2) The RCO shall in-turn notify the office of the Adjutant General by phone at _____, or the staff duty officer, and the State Safety and Occupational Health Office by phone at _____.
- f. The RCO, with the assistance of the SOHM, shall investigate the mishap and file a U.S. Army Accident Report, DA Form 285-AB-R "Abbreviated Ground Accident Report" as appropriate, in accordance with AR 385-40.

E-2. Reporting injury or mishap.

All injuries or mishaps shall be reported to the RCO as soon as possible. The OIC/NCOIC shall be responsible to obtain witness statements and assist in making reports as may be required.

**Appendix F
Indoor Firing Range Inspection Checklist**

**Section I
Introduction**

See paragraph 2-2 of this regulation for inspection requirements. For the range to be considered safe each of the following statements shall be true and air-sampling results shall be below the standard for lead. The information in parentheses after each statement denotes the location of the requirement in this or other regulations.

Location of the Range _____ Date _____
 Range Control Officer _____ Telephone _____

**Section II
Physical Safety Inspection**

Indicate steps completed by checking off items.

F-1. Building Envelope

- a. Each firing lane is at least 4 feet wide. [2-2a(1)(a)]
- b. Pipes, conduits, and other projecting surfaces are baffled or covered by a material that shall protect these items and prevent ricochets. [2-2a(1)(b)]
- c. Pipes, conduits and walls are sealed to prevent migration of lead dust from the range into other areas. [2-2a(2)(b)]
- d. There are no open floor drains in the range. [2-2a(2)(c)]
- e. There is no carpet, drapes or other fiber-like material in the range. [2-2a(2)(d)]
- f. No windows or doors are located in front of the firing line. (Except access door to the back of the bullet trap) [2-2a(2)(e)]

- g. The interior surfaces or the range floor, walls, and ceiling have no protruding edges or devices. (DG 415-1, 2-3.3.1)
- h. The roof provides ballistic security. (DG 415-1, 2-3.3.1)
- i. The walls provide ballistic security. (DG 415-1, 2-3.3.1)
- j. Interior mortar joints are flush with the interior surface. (DG 415-1, 2-3.3.1)
- k. The plenum wall is adequately supported and thick enough to avoid flexing. (DG 415-1, 2-3.3.1)
- l. The entrance door to the range is weather-stripped unless the door acts as passive make-up air intake. (DG 415-1, 2-3.3.1)

F-2. Range Lighting

- a. Lighting is uniform, non-glaring and does not cause shadows. [2-2c(1)(a)]
- b. Illumination is at least 100 foot candles on the targets, 50 foot candles behind the shooter and 60 foot candles of task lighting at the firing line. [2-2c(1)(b)]
- c. All lighting is protected by baffles and placed so that the shooter has an unobstructed view down range. [2-2c(1)(c)]
- d. Downrange lighting begins approximately 18 feet from the firing line and ends approximately 8 feet from the target line. [2-2c(1)(d)]
- e. Emergency lights are provided behind the firing line and are in working condition. [2-2c(1)(e)]
- f. Exit lights are provided and working as required. [2-2c(1)(f)]
- g. Lighting of at least 20 foot-candles is provided behind the bullet trap for maintenance (if applicable). [2-2c(1)(g)]
- h. No known electrical hazards exist in the range. [2-2c(2)(c)]

F-3. Bullet traps

- a. A bullet trap is permanently installed in the range. [2-2d(1)(a)]
- b. Bullet traps are of a commercial design that complies with the requirements of CEHND 1110-1-18, NGB-ARI, and this regulation. [2-2d(1)(b)]
- c. The thickness of inclined plate type bullet trap shall be adequate to attenuate the maximum caliber of ammunition authorized to be fired on the range. [2-2d(1)(b)]
- d. All plate type bullet traps are designed to prevent ricochets by directing the projectiles in the same direction they are traveling. [2-2d(1)(b)]
- e. Forward edges in a louver or venetian blind type bullet trap are maintained in a knife edge condition to prevent ricochets. [2-2d(1)(c)]
- f. Steel bullet traps are not bowed, punctured or severely pitted. [2-2d(2)(a)]
- g. Plates in the bullet trap are flush with the other plates. Welded seams are ground smooth. [2-2d(2)(b)]

F-4. Targets and target carriers

- a. A target retrieval system is operable in all lanes. [2-2e(1)(a)] (Any one firing lane without a retrieval system shall not be used for firing)
- b. The target retrieval system is constructed in such a manner as to minimize flat surfaces exposed to the firing line. [2-2e(1)(a)]
- c. Only paper targets are used in the range. [2-2e(1)(b)]

F-5. Range use

- a. The range is not used for any purpose other than firing. (2-3a)
- b. The ventilation system is in operation at all times during firing or cleaning. (2-3c)
- c. No equipment or furniture is stored or maintained in the range, plenum area or behind the bullet trap. (2-3d)
- d. A hand-held ABC-type fire extinguisher is located in a recessed cabinet near the entrance door, inside of the firing range. (2-3e)
- e. Personnel are *not* permitted in the plenum area during firing even if designed for observation. (2-4a)
- f. All areas directly in front of the plenum walls are kept clear at all times. (2-4c)
- g. Individuals other than maintenance and inspection personnel are not allowed to walk downrange. (Except in regularly cleaned area as needed to pick up brass) (2-4f)
- h. 8. Pellets, BBs, magnum and armor piercing rounds are not used in the range. (2-4g)
- i. No additional clothing or equipment is brought into the range. (2-4h)

F-6. Range maintenance

- a. Dry sweeping does not occur in the range. (2-4e)
- b. No brooms are located in the range. (2-4e)
- c. An RCO is appointed for the range who is fully trained and aware of his/her responsibilities. (1-19)

F-7. Personnel protective equipment

- a. All personnel in the range during firing wear ANSI approved eye protection. (3-1a)
- b. All personnel in the range during firing wear ANSI approved hearing protection. (3-1b)

F-8. Posting of signs

- a. The following signs are posted in or in the vicinity of the range: (3-2a)
 - (1) Eating, Drinking and Smoking are *Prohibited*
 - (2) Dry Sweeping is *Prohibited*
 - (3) Wash Hands and Face Immediately Following Firing
 - (4) Only the following Ammunition is authorized for use on this Range: _____
 - (5) Hearing Protection *shall be* Properly worn during firing
 - (6) Proper Safety Glasses/Goggles *shall be* worn during firing
 - (7) Storage of furniture or other items of equipment is *not* permitted in the range
- b. The following signs are posted on the entrance door to the range: (3-2b)
 - (1) Noise Hazardous Area
 - (2) Danger Lead Hazard Area
 - (3) Pregnant women are *not* permitted in this Area
- c. An illuminated warning sign, which is interlocked with the range ventilation switch, is located outside of the firing range to alert individuals that the range is in use. (3-2c)
- d. Each firing lane is numbered at the firing line and at the bullet trap and be visible to all shooters. (3-2d)
- e. A warning sign is posted outside of the access door to the bullet trap, which warns personnel not to enter. (3-2e)

F-9. Range SOP

- a. The IFR has a written SOP, which is approved by the SOHM. (1-15c and 3-3a)
- b. The range SOP includes as a minimum the following: (3-3b)
 - (1) The requirement for establishment and maintenance of a log of visitors for the IFR.
 - (2) The requirement for and contents of a mandatory safety briefing for all individuals prior to entering the range to be given by a designated competent RSO.
 - (3) Work practices including required, recommended, permissible and banned practices as specified by this regulation.
 - (4) Instructive guidance for all range procedures.
 - (5) Personnel responsibilities for performing the procedures, for supervising them, and reviewing and updating the SOP.
 - (6) Authorized ammunition for the range.
 - (7) The requirement for posting of signs IAW section 3-2 of this regulation.
 - (8) Cleaning and maintenance requirements.
 - (9) i. Personal protective equipment requirements for maintenance, firing and cleaning.

F-10. Recordkeeping

- a. A visitors log is maintained which includes the following information for all visitors/shooters: [(3-3b(1))]
 - (1) Name and age of shooter.
 - (2) Organization (if civilian, include address and phone number).
 - (3) Sign in and sign out times.
 - (4) Type of ammunition used and number of rounds fired.
- b. Copies of initial and other previous inspections are available. (4-2a)
- c. The initial inspection report includes air-sampling data. (4-2b)
- d. An OSHA compliance program is in place, which covers the required aspects. (1-18a)

- e. All individuals using the IFR have been provided with a copy of the range SOP or been briefed on the requirements of the SOP, and have signed an agreement to follow the rules stated therein. (1-18h)
- f. RCOs have documentation to show that they have been educated to the health effects from exposure to lead dust. (1-18j)
- g. RSOs are designated. (1-20e)

F-11. New and Renovated Ranges

- a. No doors are installed in the plenum wall.
- b. Plenum area is at least 4 feet deep.
- c. An access door is installed behind the bullet trap.
- d. Only escalator or rubber bullet traps are installed.

Section III

Ventilation Inspection

F-12. Existing Ranges

- a. The range has an operational mechanical ventilation system. [2-2b(1)(a)]
- b. The minimum ventilation rate at the firing line in each firing lane is 50 fpm at all levels. [2-2b(1)(b)]
- c. The ventilation system is so constructed that air exhausted from the IFR does not enter into another part of the building or any other air supply system. [2-2b(1)(e)]
- d. The design performance of the exhaust fans exceeds the design performance of the make-up air fans by approximately 10 percent. [2-2b(1)(f)]
- e. If air is re-circulated in the range, it is installed with a HEPA filter with a reliable back-up filter. [29 CFR 1910.1025(e)(4)(ii) and 4-4b]
- f. If air is re-circulated in the range, controls to monitor the concentration of lead and carbon monoxide levels are installed and programmed to bypass the recirculation system automatically if the filter system fails. [29 CFR 1910.1025(e)(4)(ii) and 4-4b]
- g. The fan(s) in the ventilation system is a single speed fan only. (DG 415-1,2-3.3.1)
- h. A smoke test of the range shows laminar air flow and no turbulence in the range. [2-2b(1)(i)]
- i. In non-powered systems, the supply air louvers and exhaust fan are electrically interlocked. [2-2b(1)(j)]
- j. In power systems, the supply and exhaust fans are electrically interlocked. The make-up air fan should start slightly after the exhaust fan. [2-2b(1)(k)]
- k. Gaps greater than ½ inch around or below the entrance of a doorway to the range are sealed. [2-2b(1)(m)]
- l. Range air temperature is between 65 degrees and 80 degrees Fahrenheit. [2-2b(1)(n)]

F-13. New and Renovated Ranges

- a. A manometer is installed in the duct work leading to the exhaust fan, which is capable of measuring at least 2.0 inches of static pressure.
- b. Supply and exhaust fans are electrically interlocked with the downrange lighting.
- c. The face velocity on supplied make-up and exhaust ducts does not exceed 2000 cfm per square foot of duct space.
- d. Passive supply systems have opposing blade louvers.
- e. Turning vanes are installed in all duct elbows, which have between 60° and 90° angles.

Section IV

Air Sampling

- a. The physical safety inspection, Part 1 of the range inspection checklist, was completed and all requirements met on: _____.
- b. The ventilation inspection, Part 2 of the range inspection checklist, was completed and all requirements met on: _____.
- c. Air sampling has been scheduled for: _____.
- d. Air sampling was completed on: _____ for the following types of ammunition:
_____.
- e. Air sample results do not exceed: _____ mg/m³ (results are attached).

- f. For military personnel exposed less than 30 days per year, this range is classified as: _____ (*safe, limited use, unsafe*).
- g. For military personnel exposed more than 30 days per year and for all non-DOD personnel, this range is classified as: _____ (*safe, limited use, unsafe*).
- h. For personnel under 17 years of age, this range is classified as: _____ (*safe, limited use, unsafe*).

Indoor Firing Range Inspected By (Print Name): _____
 Signature: _____
 Position: _____ Date: _____
 Next Inspection Due By: _____

**Appendix G
 Management Control Evaluation Checklist**

G-1. Function

The function covered by this checklist is the inspection, evaluation, and operation ARNG Indoor Firing Range Program.

G-2. Purpose

The purpose of this checklist is to assist commanders, managers, and supervisors in evaluating the key management controls outlined below. It is *not* intended to cover *all* controls.

G-3. Instruction

Answers must be based on the actual testing of key management controls (e.g., document analysis, direct observation, sampling, simulation, other). Answers which indicate deficiencies must be explained and corrective action indicated in supporting documentation. These management controls must be evaluated at least once every five years. Certification that this evaluation has been conducted must be accomplished on DA Form 11-2-R (Management Control Evaluation Certification Statement).

G-4. Test questions

- a. Has the range been inspected to determine if it *safe, limited use, or unsafe*?
- b. Are the RCO and RSO qualified and trained?
- c. Is a visitor log maintained?
- d. Does the IFR have a SOP?
- e. Is the IFR being used for any other purpose than for firing?
- f. Are individuals who require medical surveillance in a medical surveillance program?
- g. Are eye and hearing protection provided to all when the range is in use?
- h. Are all hazardous waste generated from range operation, cleaning and maintenance removed and disposed IAW federal and State regulations?

G-5. Comments

Help make this a better test for evaluating management controls. Submit comments to NGB-AVS-S (NGR 385-15), ARNG Readiness Center, 111 South George Mason Drive, Arlington, VA 22204-1382.

Glossary

Section I
Abbreviations

ANSI
American National Standards Institute

AR
Army Regulation

ARNG
Army National Guard

cfm
cubic feet per minute

CFR
Code of Federal Regulations

CNGB
Chief, National Guard Bureau

CFMO
Construction and Facilities Management Officer

DA
Department of the Army

DA Pam
Dept of the Army Pamphlet

DARNG
Director, Army National Guard

DG
Design Guide

DOD
Department of Defense

fpm
feet Per Minute

HEPA
High Efficiency Particulate Air

HQDA
Headquarters Department of the Army

IAW
In Accordance With

IFR
Indoor Firing Range

JRROTC

Junior Reserve Officer Training Corps

mg/m³

Milligrams per cubic meter

NIOSH

National Institute for Occupational Safety and Health

NGB

National Guard Bureau

NGR

National Guard Bureau Regulation

OIC/NCOIC

Officer In-Charge or Non-Commissioned Officer In-Charge

OSHA

Occupational Safety and Health Administration

Pam

Pamphlet

PPE

Personal Protective Equipment

RCO

Range Control Officer

rpm

revolutions per minute

RSO

Range Safety Officer

SOHM

State Safety and Occupational Health Manager

SOP

Standing Operating Procedure

USACHPPM

U.S. Army Center for Health Promotion and Preventive Medicine

TB MED

Technical Bulletin, Medical

TG

Technical Guide

wg

water gauge

Section II Terms

Back splatter

This refers to the small particles, which break off of a bullet as it impacts the bullet trap. Variables such as the bullet composition, angle of the bullet trap, and the velocity of the impact dictate the amount and pattern of the back splatter.

Breathing zone

The imaginary globe of two feet radius surrounding the head.

Competent person

An individual who has been specifically trained to identify safety and occupational health hazards associated with lead dust and indoor firing ranges. The individual is aware of current regulations governing indoor firing ranges, ventilation requirements, air-sampling principles and terminology. He/she can collect air samples correctly use diagnostic ventilation evaluation equipment and interpret results. He/she can provide appropriate guidance in the abatement of known hazards and has the authority to do so. He/she has received written authorization from the regional industrial hygiene office to properly evaluate indoor firing ranges.

General area

Collection of and later analysis of airborne contaminants in a given work environment. As the sampling pump and collection media are not attached to a worker, the concentrations found represent average concentrations in that area but may not representative of the actual exposure of the worker.

HEPA

Refers to high efficiency particulate air filter systems capable of capturing up to 99.97 percent of particles 0.3 microns in size or larger.

Industrial hygiene

The science and art devoted to the anticipation, recognition, evaluation, and control of those environmental factors or stresses, arising in or from the workplace, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among workers.

Plenum

This term refers to a chamber used to build static pressure before the air enters the firing range. Air is introduced into the plenum from the side, top, or back and is forced through a perforated wall (called the plenum wall) behind the firing line.

Ranges classified as:

- a. *Safe*: Are IFRs that after inspection and/or periodic inspection meet all safety requirements, ventilation requirements, and lead exposure requirements.
- b. *Limited*: Lead concentrations are above 0.05 mg/m^3 for an 8 hour period but do not exceed 1.0 mg/m^3 in any breathing zone or general area sample.
- c. *Unsafe*: Are IFRs that after inspection and/or periodic inspection do not meet all safety requirements, ventilation requirements, and lead exposure above 1.0 mg/m^3 .

Ricochet

A ricochet occurs when the main body of the bullet is deflected off the surface of the bullet trap.

Smoke Testing

To conduct a smoke test, a smoke candle is ignited behind the firing line. The smoke is used to check the airflow at and in front of the firing line. There should be laminar flow down the range to the bullet trap and no turbulence at the firing line. It is also important to ensure that the smoke does not circle back behind the firing line.

Section III
Special Abbreviations and Terms

This section contains no entries.